1928

A mental educational and social survey of the school children of Wheatland County Montana

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The University of Montana

A MENTAL, EDUCATIONAL, AND SOCIAL SURVEY

OF

THE SCHOOL CHILDREN OF WHEATLAND COUNTY,

MONTANA

BY

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Presented in partial fulfillment of the requirement for the degree of Master of Arts.

STATE UNIVERSITY OF MONTANA

1928

(Signed) W. E. Maddock

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FOREWORD

The writer wishes to take this opportunity of expressing his sincere appreciation for the assistance given him by the superintendents, principals, and teachers of Wheatland County, in collecting the data necessary for this study.

Miss Matilda Jennings, County Superintendent of Schools, contributed the figures necessary for determining the number of tests needed for each grade, and was especially helpful in urging the teachers to cooperate in the survey.

Superintendent H. P. Schug and his staff at Harlowton are deserving of thanks for their careful administering of the tests in their schools, and for furnishing the data asked for on the social questionnaire.

Principal H. F. Wampler at Hedgesville, with his teachers, likewise were helpful and assisted in correcting the tests for their school.

To the many rural teachers participating in the survey the writer extends his thanks for the time and effort they have contributed.

Much credit is due the teachers of Judith Gap for the assistance given in administering and correcting the tests.

To numerous members of the faculty of the University of Montana the writer is indebted for suggestions and advice as to method and procedure, and he wishes to recognize the assistance given by Dr. E. R. Wood of Kansas State Teachers College in selecting and furnishing the tests.

PREFACE

During a conversation with Dr. W. R. Ames of the University of Montana in the summer of 1927 the question came up as to the desirability of having such a survey as this study represents made of the State of Montana.

It was decided that such a project would be valuable from the educational point of view and would make an acceptable thesis topic.

If a similar study can be made of other sub-divisions of the state or nation much can be learned of the educational and social factors concerned.

In preparing the interpretation of the large amount of data obtained in Wheatland County, it is the hope of the writer that the movement will be taken up in other sections in an attempt to obtain a comprehensive knowledge of existing conditions, that school workers may more intelligently attack their problems.

With such an idea in mind this study will contain a detailed description of the procedure followed, together with the experiences, personal opinions, and suggestions of the writer, for the benefit of those who may be interested in undertaking a similar task.

INTRODUCTION

Considerable time and care were taken in selecting the tests to be used in the survey, with the following objectives in mind:

1. It was desirable to select such tests as could be used consecutively in grades four to twelve in order that the measurements could be taken with the same scale as much as possible, to assure more uniform results.

2. The criteria for the selection of tests as listed by Freeman (23, p. 173)* were considered at length: (a) Price, (b) Completeness and Simplicity of Material and Directions, (c) Adaption to Ages or Grades, (d) Appeal to the Child, (e) Content, (f) Length, (g) Ease of Administering, (h) Simplicity of Response, (i) Objective and Simple Scoring, (j) Norms, (k) Use of the Relative Score, (l) Directions on tabulating the results, and (m) External criteria such as: -1- Medians or averages of age groups and -2- Correlation of the tests chosen with other tests.

As a result of the attention given to the selection of the tests, one mental and five educational tests were chosen because of their adaptability to the needs of the survey. In addition, a questionnaire was arranged for each student in the grades considered.

Because of the lack of testing material for grades below the fourth, and the increased probability of error in the interpretation of information obtained from the younger children, the range of this investigation was limited from grades four to twelve, inclusive.

The tests were all ordered from the Bureau of Standards at the Kansas State Teachers College, and were administered during the months of October, November, and December, 1927.

Where it was impossible for the writer to personally supervise the giving of the tests, a set of mimeographed directions, supplementing those accompanying the tests, were given each examiner.

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* References will be designated by numbers inclosed in parentheses with the page following the number of the reference throughout the study.

Special care was taken to eliminate errors arising from the correcting of the tests, each test being corrected, and recorrected. In the checking of the correcting, so few errors, comparatively, were found, that it is questionable whether the extra effort was well spent, or the results any more accurate.

A total of 635 children, representing 23 schools, were tested. Due to the large number of rural schools concerned, inter-school comparisons were not made, as the number of cases obtained from each school, with the exception of Harlowton, which is located in a second class district, were so few that they had no statistical value. Comparisons were rather made by grades over the county as a whole.

The survey was divided into three main parts — Mental, Educational, and Social.

In the Mental phase of the study were considered such comparisons as the relation of the mental status of the groups to their achievements in the educational tests; their plans for additional schooling; choice of studies; vocations and avocations; birthplaces of themselves and their parents; their father's occupation and income; their mother's pre-marriage occupation; home conditions, both economic and social; size of families; sexes; their teacher's estimate of their native ability, scholarship, deportment, and application; the number of schools attended; grades repeated; and other factors affecting their lives.

The part devoted to the Educational discussion included a description of the educational facilities of the county, together with an analysis of the distribution of the students and schools; the significance of studies liked best and least; the numbers planning on attending high school and college; opportunities for vocational guidance from the results of the tests and other factors; comparisons of the scores on the educational tests, their central tendencies and meaning; the relation of their scholastic achievements to their home conditions, parentage, and general environment.

In considering the social problems arising from the information at hand, an attempt was made to study the social significance of the choice of studies; plans for higher

education; the advantages offered in the county for vocational and avocational choices; the migratory characteristics of the groups; the social status of the parents and its influence upon the children; the relation of children's choice of vocations to those of their parents; the tendency of parents to rent and own homes in proportion to their income, and the social significance of the aesthetic advantages to be had in the homes, together with other social problems.

The data involved in drawing conclusions was carefully taken from especially prepared tabulation charts, and every effort was made to have it accurate.

In determining the correlations, the Otis Correlation Charts were employed. The Universal Percentile Graph was used in studying the central tendencies of the tests, and the Baltimore Age Calculator simplified greatly the determination of the chronological ages of the students.

Chart #1

Showing distribution of IQ's by ages and sexes

Girls
Boys
Both

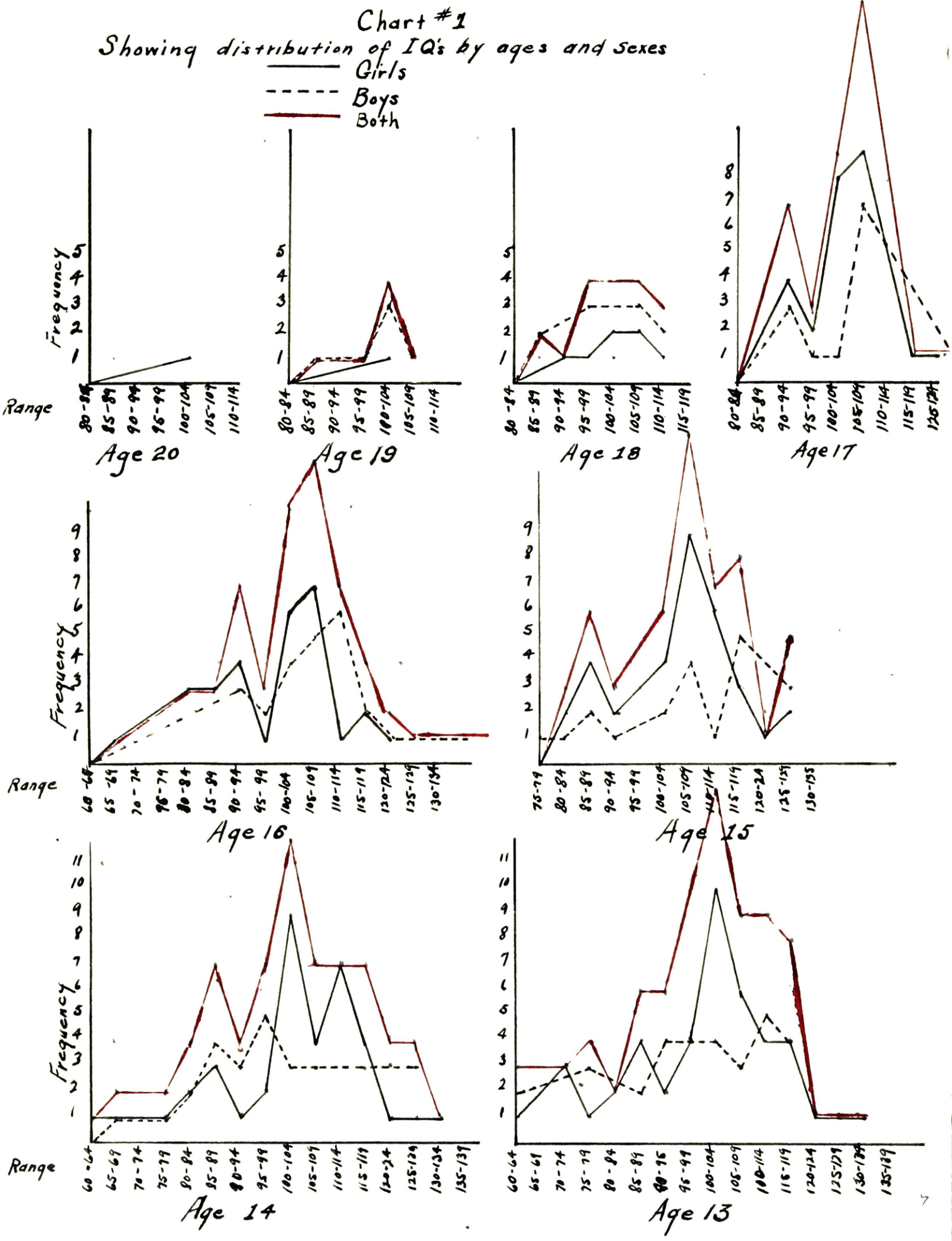
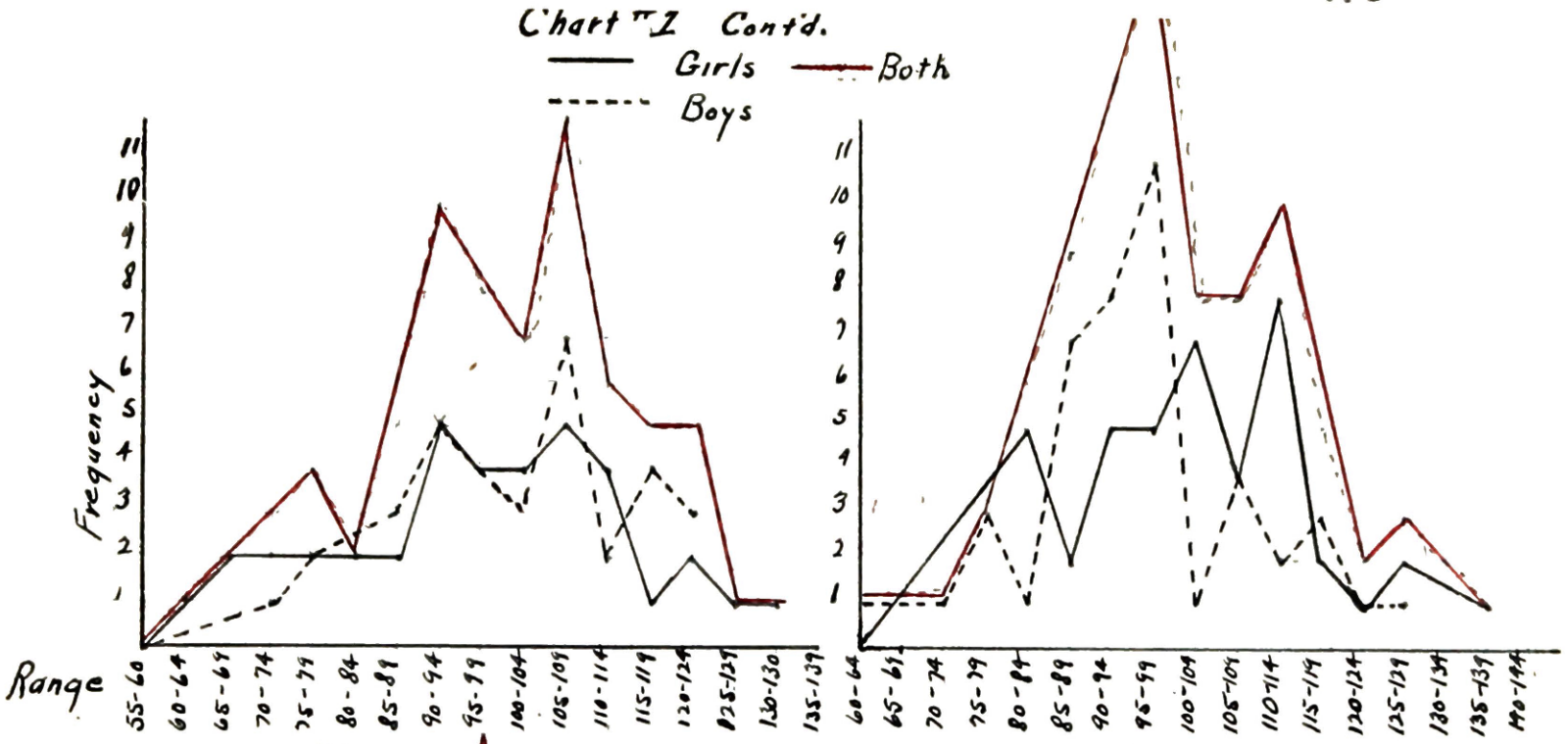


Chart II Cont'd.

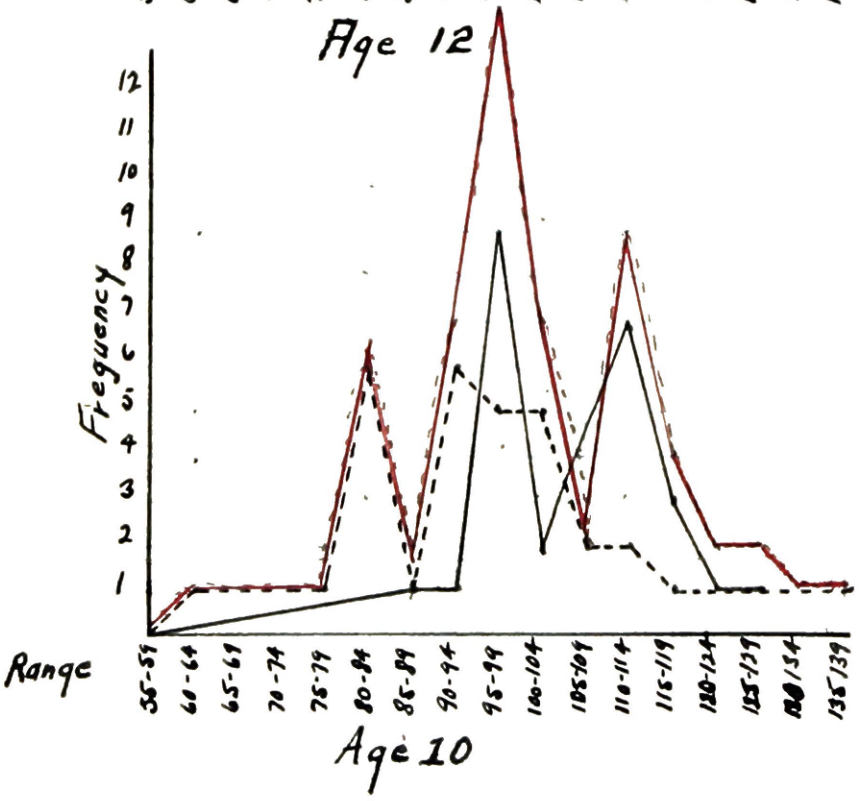
Girls — Both

Boys ----

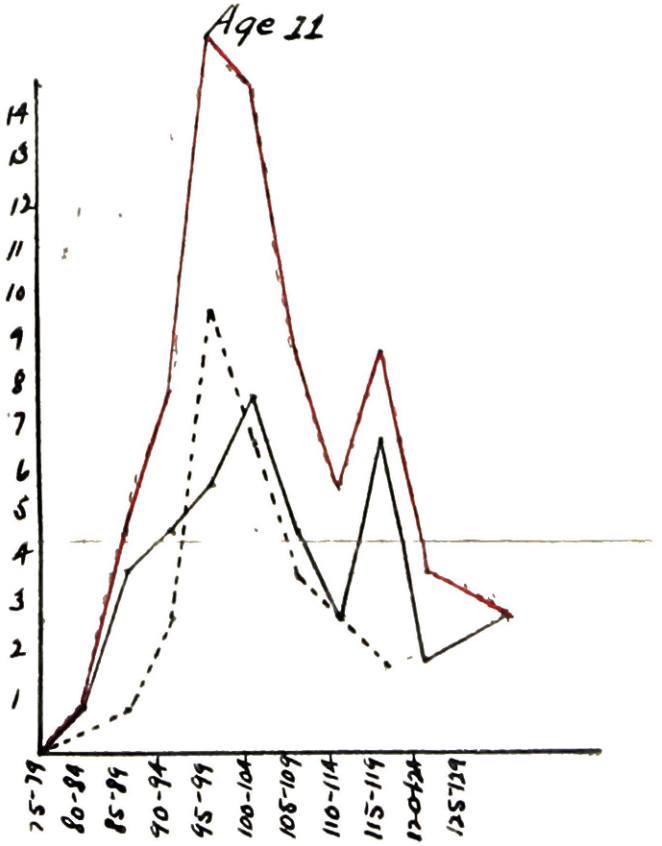


Age 12

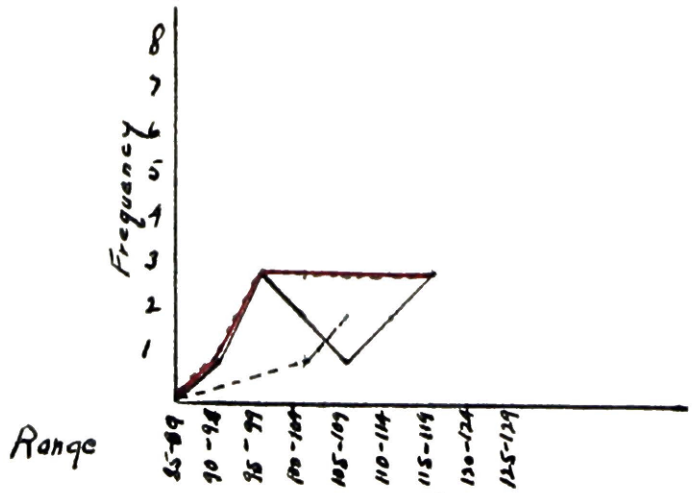
Age 11



Age 10



Age 9



Age 8

MENTAL

The mental status of the students was determined by means of the Otis Self-Administering Tests of Mental Ability. The Intermediate Form was used in grades 4 - 8 inclusive, and the Advanced Form for the grades 9 - 12 inclusive. The desirable features of this examination are: the low cost, the ease with which it can be administered and corrected, the simple method of determining the I Q's by means of a chart, and the improved percentile graph accompanying each package of tests. The full thirty minute period was taken to administer the examination.

Some workers contend that the use of the I Q as a means of expressing the mental capacity of an individual is misleading and questionable, but it is the most common expression used, and if understood as being simply a ratio between the mental and chronological ages need not cause a great deal of concern. It was first suggested by William Stern (23, p. 98) who called it the mental quotient. Terman was convinced it was a legitimate measure and expressed it in whole numbers by multiplying the ratio of the mental age to the chronological age by 100; renaming it the Intelligent Quotient. The term was used in this study instead of the raw scores of the examination in order that comparisons might be made with other studies.

The concensus of opinion seems to be that there is so little difference between the intelligence of groups of boys and girls that it is hardly necessary to consider separate norms for the two sexes. Yerkes, Bridges, and Hardwick, (23, p. 296) reached the conclusion on their revised point scale that differences in the total score made by boys and girls were negligible, although there was some indication that particular test items were grasped more easily by one sex than by the other.

Terman reports differences in favor of girls up to thirteen years of age of from two to four per cent, but attaches little significance to the fact. However, the two sexes were considered both separately and as a group in the following discussion.

Table I on the following page and Chart I on the preceding page show the distribution of the IQ's by ages, sexes, and as a group. The first column, Chart I, shows the ages;

the second, the median for that age; the third, the range; and the fourth, the frequency for the ages; the same order prevailing for the girls and as a group.

TABLE I

Showing distribution of IQ's by ages, sexes, and as a group.

Age	Med.	Range	Freq	Med.	Range	Freq	Med.	Range	Freq
	BOYS			GIRLS			BOTH		
8	106.5	100-109	3	104-5	90-119	12	105.5	90-119	15
9	101.2	85-119	31	103.1	80-124	43	102.2	80-124	74
10	96.0	60-139	34	99.4	85-129	27	97.7	60-139	61
11	94.5	60-129	45	104.1	80-129	44	99.3	60-139	89
12	107.0	70-124	30	98.7	50-134	39	102.4	60-134	69
13	102.5	75-119	32	102.5	60-134	45	102.5	60-134	77
14	104.5	65-129	30	104.5	60-134	39	104.5	60-134	69
15	108.3	70-129	25	107.0	80-129	39	107.7	70-129	64
16	104.0	90-119	25	104.3	65-129	33	104.2	65-129	59
17	106.2	90-119	14	103.1	90-119	19	104.7	90-119	34
18	104.5	85-114	10	104.5	90-114	7	104.5	85-114	17
19	101.6	85-109	7	101.0	100-104	1	101.6	85-104	8
20	0	0	0	103.0	100-104	1	103.0	100-104	1

The median and ranges are expressed in terms of the interval in which they occur. The girls apparently have a higher median than the boys for ages 9-10-11-16 and 20, the same for ages 13-14 and 18, and lower for ages 8, 12, 15,17, and 19. So few cases are represented by the ages 8, 18, 19, and 20 that comparisons are of little significance.

The greatest range for boys occurs at age 10 where it is from 60-139, and least at age 8, where the three cases are from 100 to 109. For the girls the greatest range occurs at ages 10-11, being from 60 to 139.

The highest medians for boys occur in the 8-12-15-17 year group, in the interval 105 to 109, while with the girls the 8-16 year groups lead with the same interval as the boys. Probably the explanation of the higher interval with the 8 year old group lies in the fact that they are superior students by being in the fourth grade at the age of eight. The other median for the ages indicated are no doubt due to con-

ditions favorable to those particular cases.

The intervals containing the lower median for the boys occur at ages 10 and 11, at from 95-99. The lower median for the girls likewise occurs in the 95-99 interval for the ages of 10 and 12 only, showing the girls to be higher than the boys for age 10, although in the same interval with them for that age.

The high medians for the group by ages occur in the 104-109 intervals for ages 8 and 16. The low medians in the 95-99 intervals for ages 10-11.

The greatest range for the group is from 60-139 also happening in the 10-11 year ages, and the least for the 8-19-20 ages of which there are so few cases.

It is apparent that the medians for the different ages considered by sexes and as a group all fall in intervals which indicate near normalcy, that is, from 95-109.

Table and Chart II, following, consider the distribution of IQ's by school grades. The highest median for both boys and girls occurs in grade 9 where it falls respectively at 113.0 and 107.5, while the lowest for the boys comes in grade six in the 90-94 interval. The lowest for the girls is shown also for the 6th grade, being in the 90-99 interval. The greatest range representing the boys' IQ is from 60-139 in grade 6, and for the girls, 60-134 in grade 8.

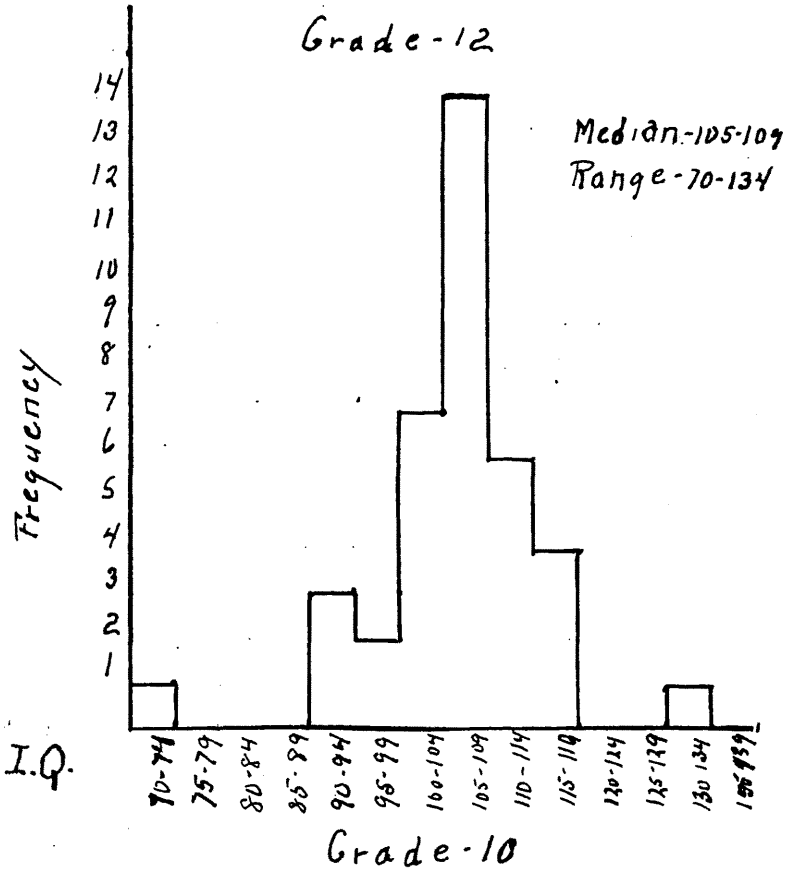
TABLE II

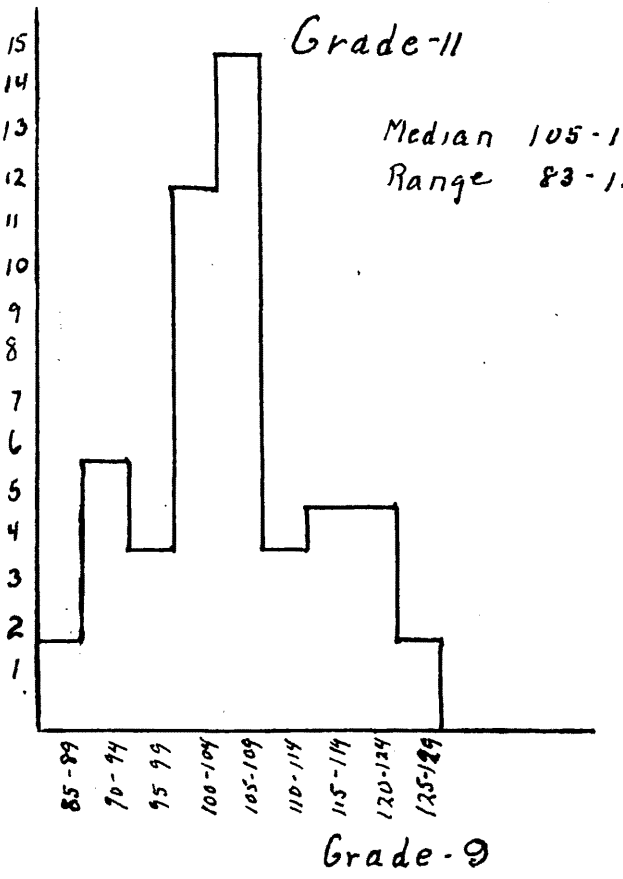
Showing distributions of IQ's by grades

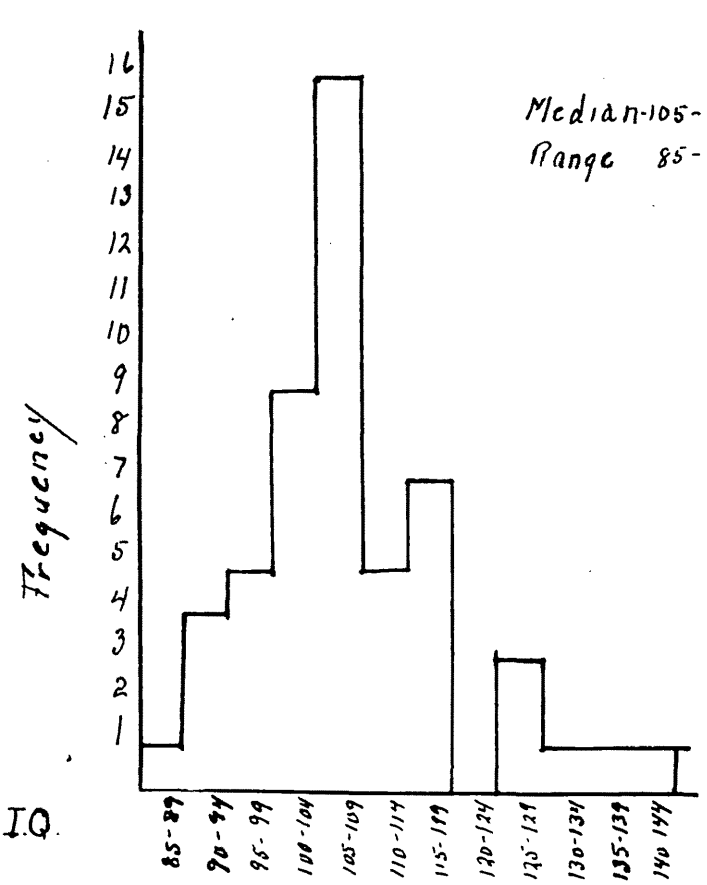
Grade:	Med.:	Range	:Freq:	Med.:	Range	:Freq:	Med.:	Range	:Freq:
	BOYS			GIRLS			BOTH		
12	:107.1:	70-135:	20	:104.5:	90-119:	18	:105.8:	70-134:	38 :
11	:104.5:	85-129:	20	:105.6:	90-124:	30	:105.3:	85-134:	50 :
10	:107.5:	85-139:	24	:107.5:	90-140:	30	:107.5:	85-144:	54 :
9	:113.0:	90-129:	31	:107.5:	80-134:	28	:110.2:	80-134:	59 :
8	:102.8:	75-129:	32	:100.4:	60-134:	56	:101.1:	60-139:	88 :
7	: 99.5:	65-134:	37	:105.9:	75-139:	42	:102.7:	65-139:	79 :
6	: 93.5:	60-139:	36	: 97.5:	60-129:	52	: 85.5:	60-134:	88 :
5	: 96.4:	60-119:	40	: 98.2:	65-129:	40	: 97.3:	60-129:	80 :
4	: 96.7:	60-119:	43	: 99.7:	80-119:	50	: 98.2:	60-124:	93 :

Chart # 2

Showing distribution of I.Q's of both boys and girls by grades







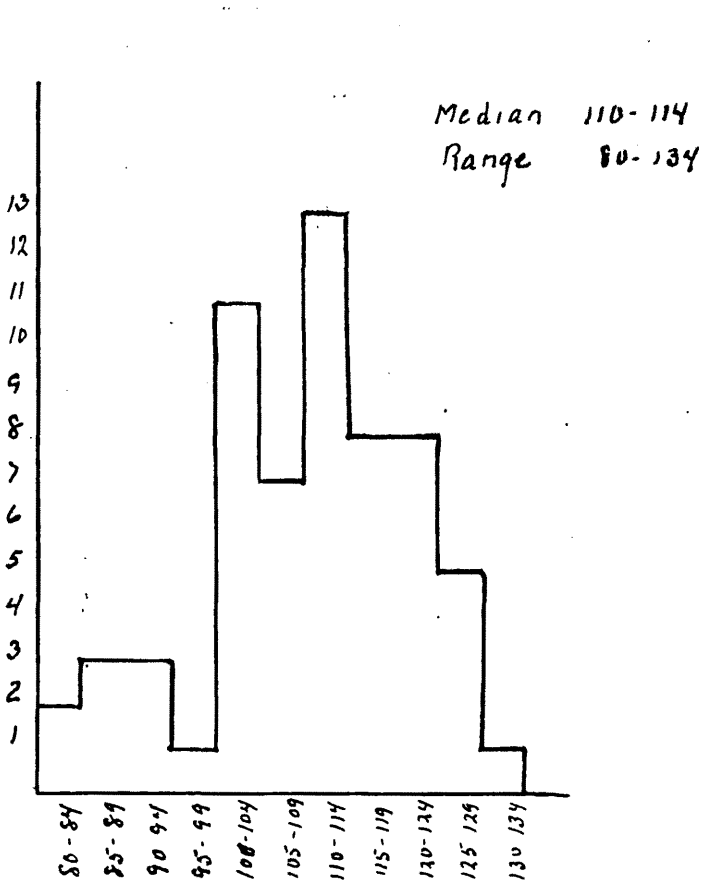
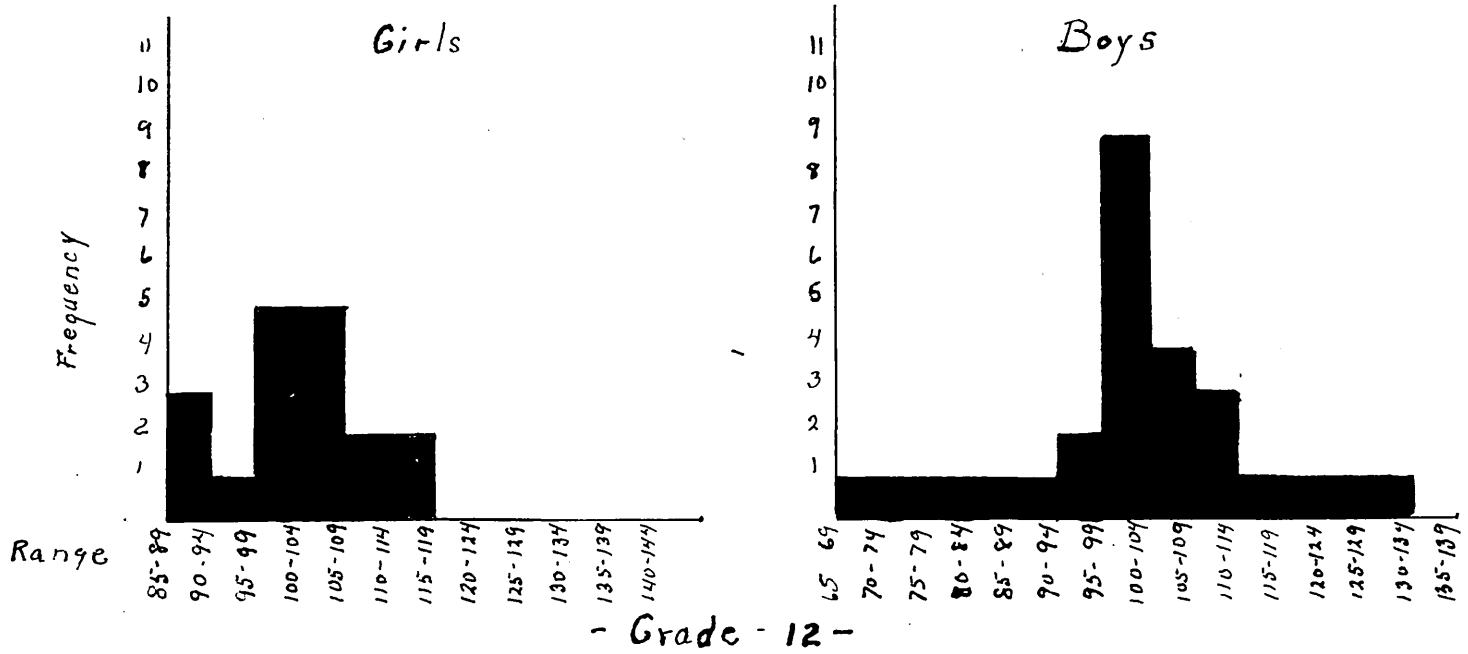
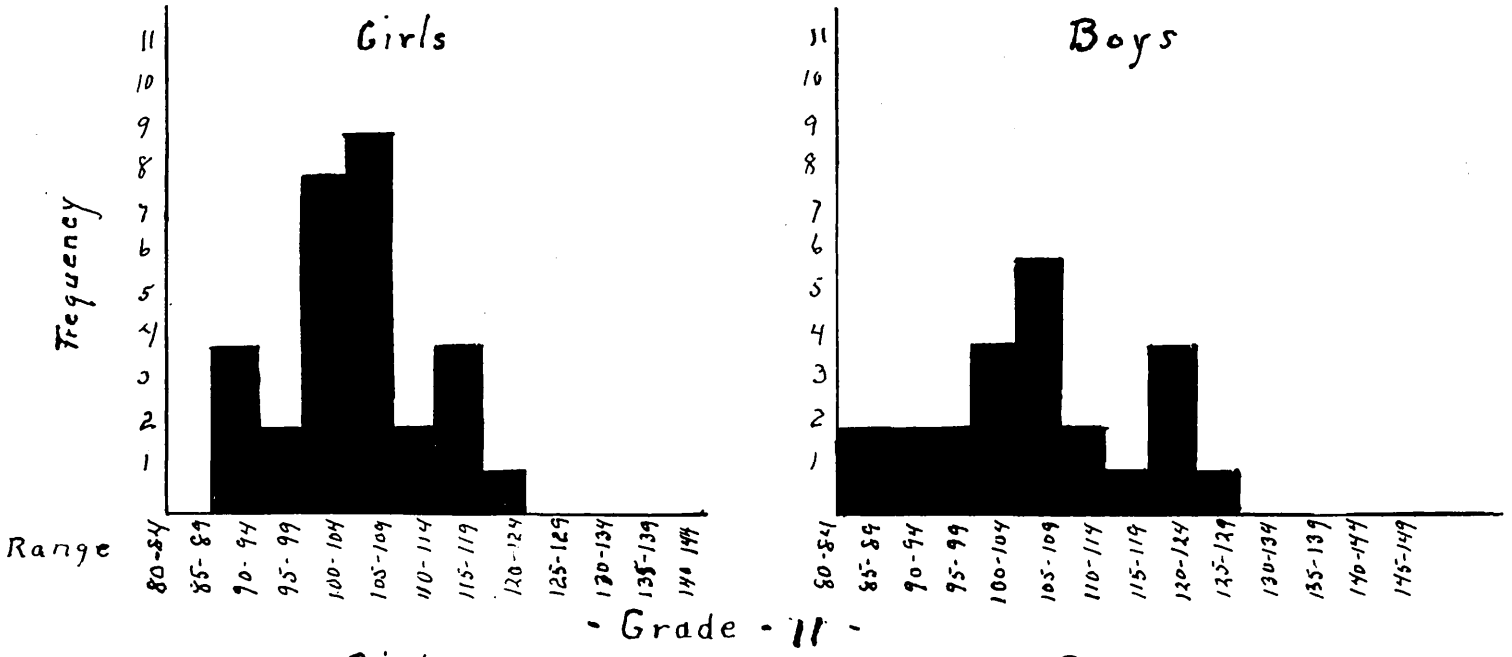


Chart # 2. Cont'd

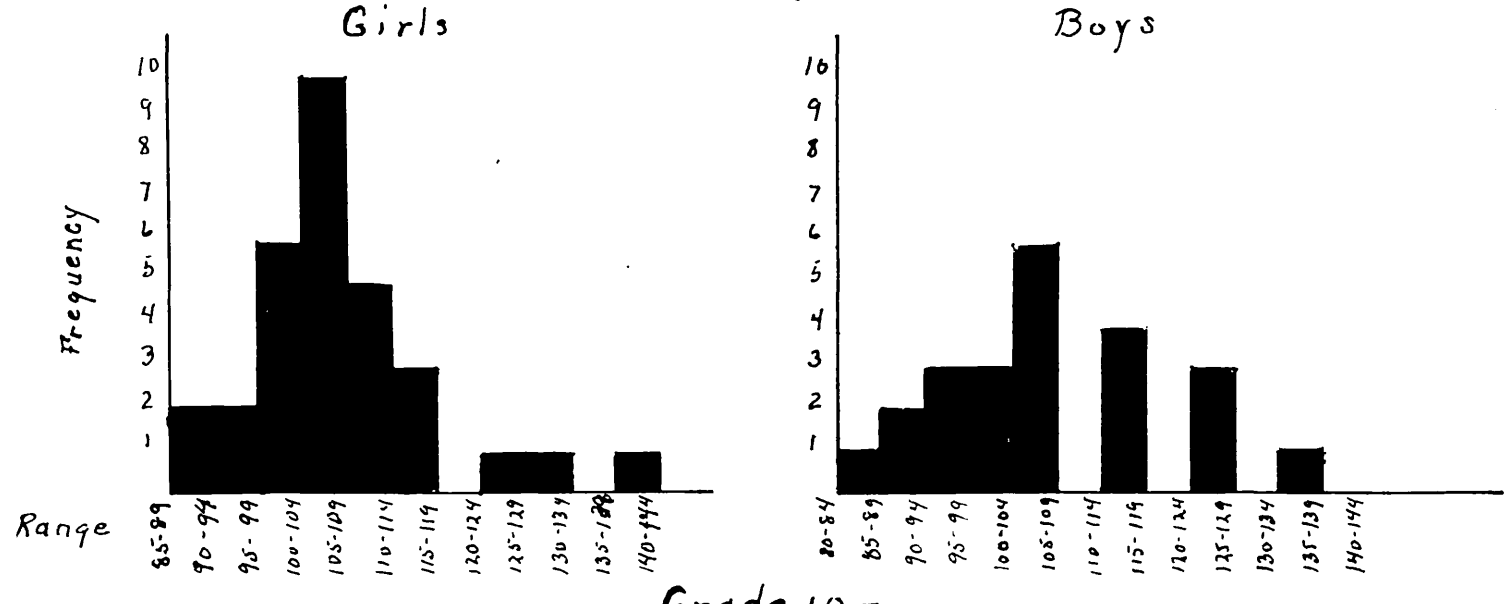
Histograms, showing distribution of IQ's by grades



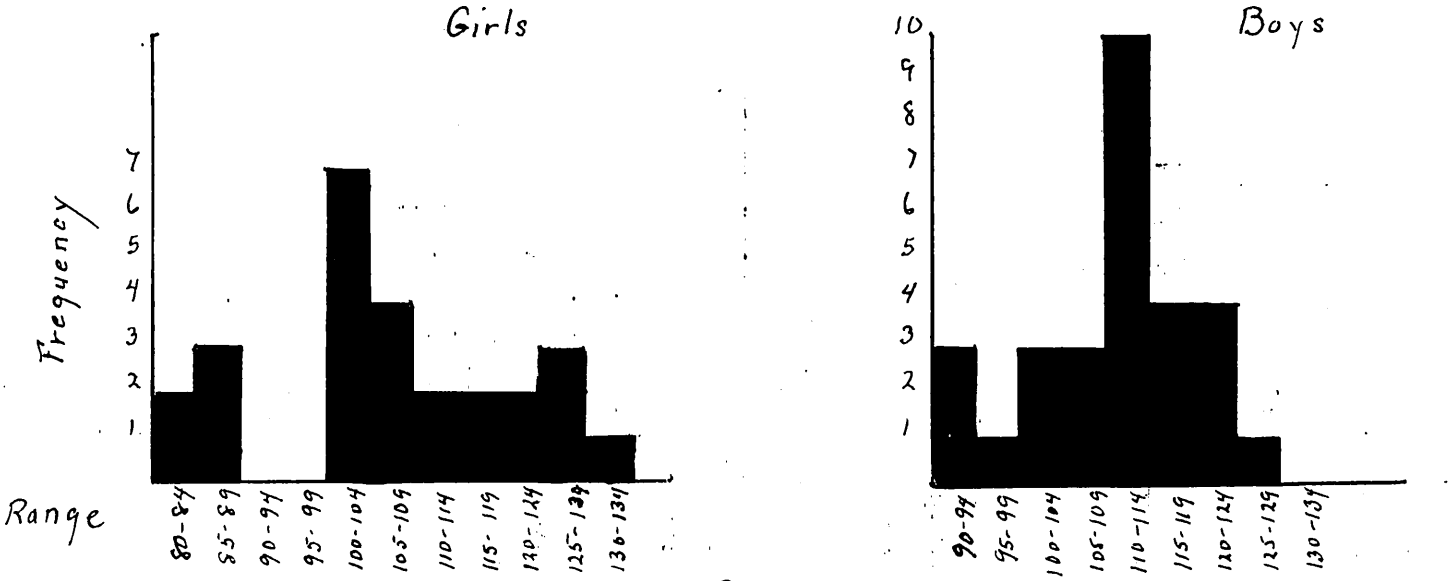
- Grade - 12 -



- Grade - 11 -



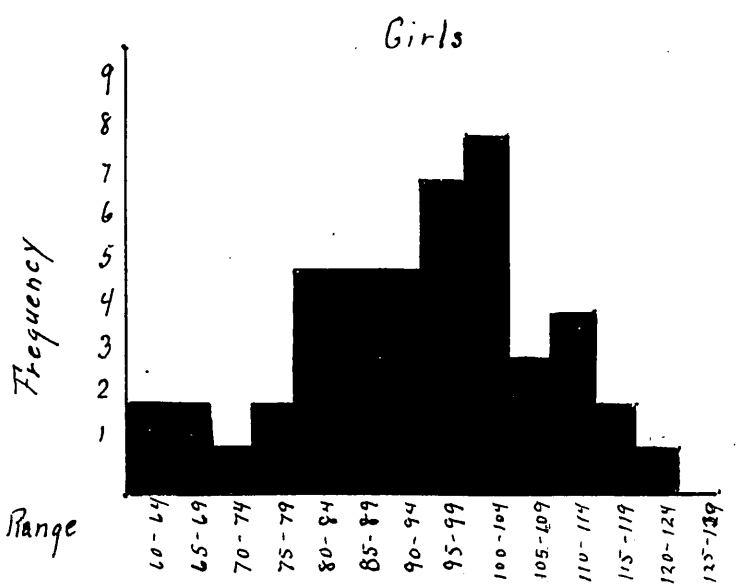
Grade-10 -

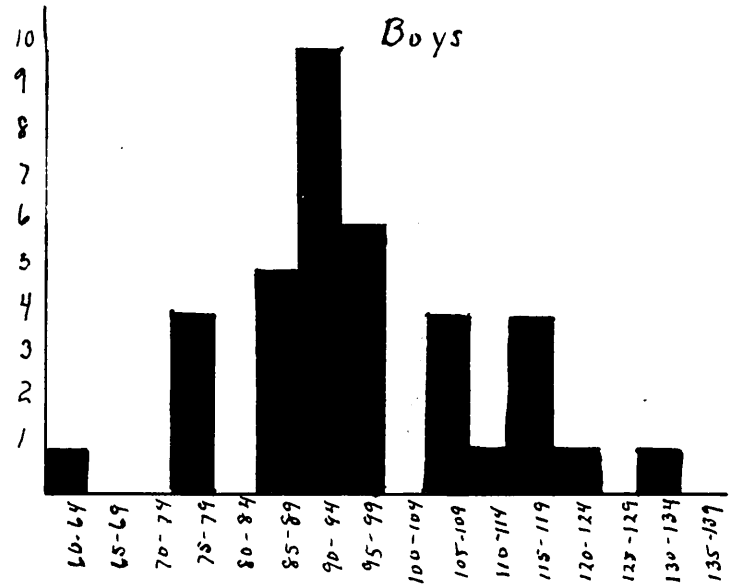


- Grade 9 -

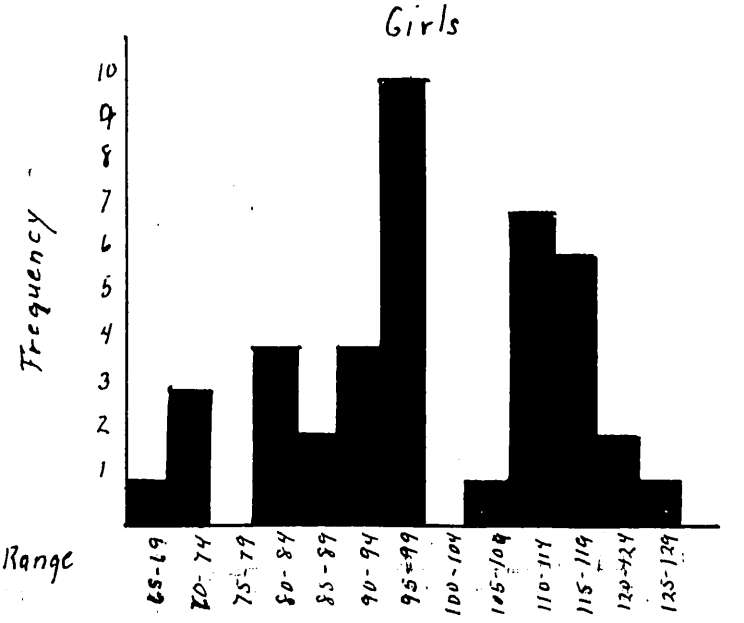
- Grade 8 -

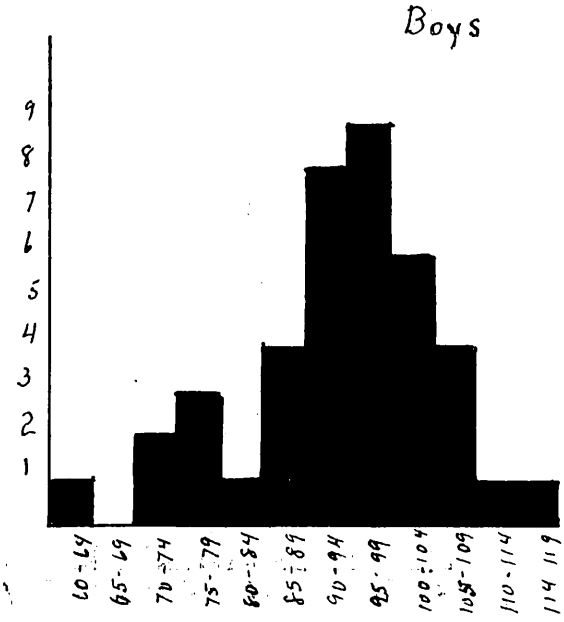
- Grade - 7 -



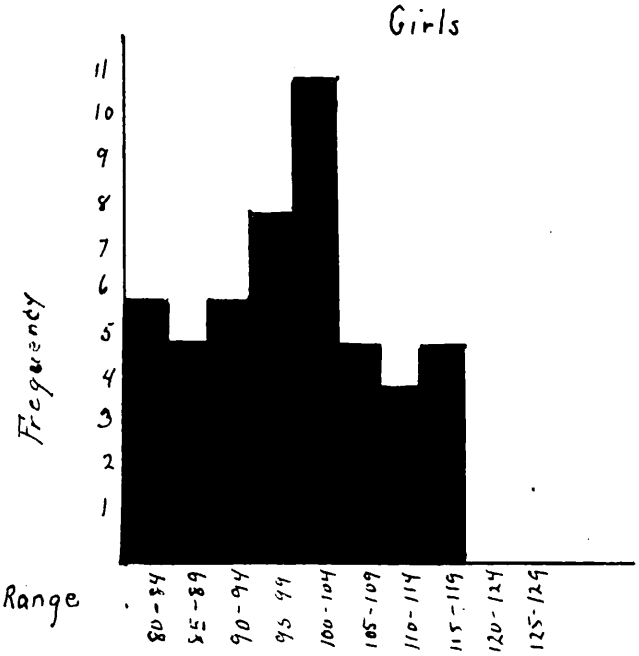


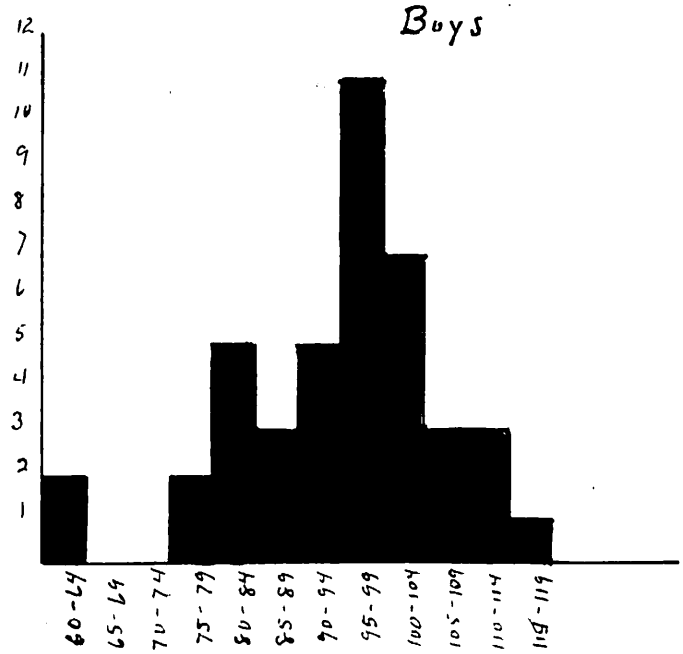
- Grade 6 -





- Grade 5 -



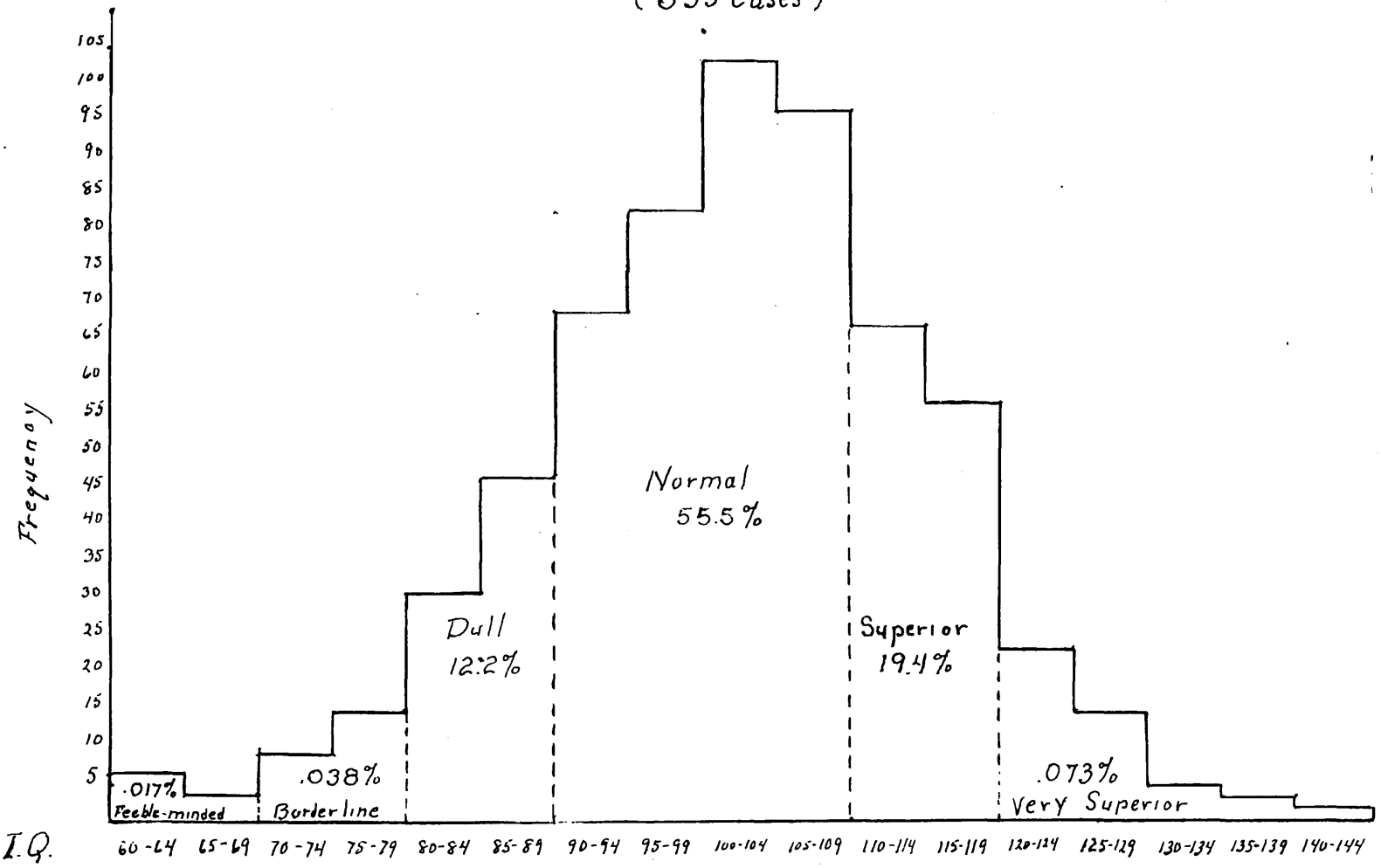


- Grade 4 -

Chart 3

Distribution of IQ's as a whole and by sexes

(635 Cases)



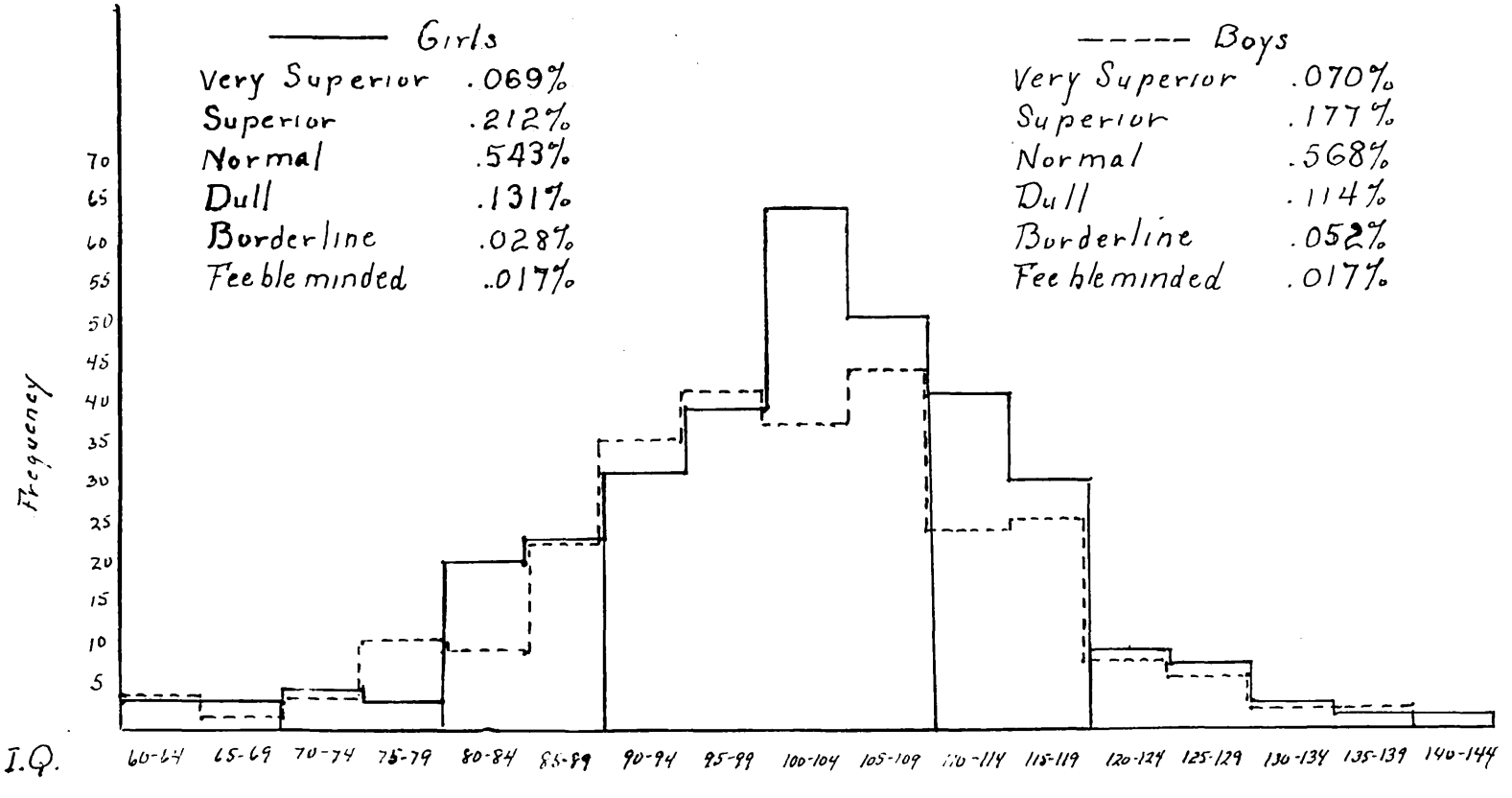


TABLE III

	Natural	Group	Boys	Girls
Very Superior	2 %	7.3 %	7 %	6.9 %
Superior	14	19.4	17.7	21.2
Average	68	55.5	56.8	54.3
Dull	14	12.2	11.4	13.1
Very dull	2	5.5	6.9	4.5

The Wheatland County group considered as a whole, appear to be above and below normal in the several classifications. 5.3 % more cases fall in the very superior group and 2.3% more in the superior. However, there are 12.5% fewer cases in the normal or average group than would come under the curve of natural distribution. Only 12.2% of the local cases fall in the "dull" group as compared with 14% as would be expected with a natural group. 3.5% more cases received the "very dull" classification than would naturally be found.

The table also shows comparisons of both boys and girls with the natural distribution and with each other. The girls exceed the boys in standing in the "superior" and "very dull" groups, but are below the boys in the other groups.

The object of determining the correlation between the IQ's and the achievements on the educational tests used in the survey is two-fold. First, it seemed desirable to make the comparisons for diagnostic purposes, and second, to compare the correlations found with those obtained in other studies.

The term correlation, coming from the word co-relation, is the degree of relationship between two variables. It is expressed as a decimal, either positive or negative. A positive correlation shows the variables tending to vary together, that is, as one increases, the other increases also, while with the negative, as one increases, the other decreases. Either type may vary from 1, a perfect correlation, to 0 which indicates no relationship at all.

The significance of the different degrees of correlation seems to differ by opinions. Rugg, (42, p. 172) indicates that a correlation of .8 to .9 is very high, of .5 to .7, high, .35 to .50, marked, of .20 to.35, low and one of.10 very low and of no significance. McCall, however, is a little more exact in his

classification of the coefficients. He states that a correlation of less than .4 is low, .4 to .7, substantial, and one of more than .7, high. (Ibid)

Table IV, below, shows the coefficients of correlation between the results of the intelligence test and the five educational tests by grades and as an average. It presents such an array of possibilities that it is difficult to interpret them.

Two comparisons were made from the results of the reading tests, those of comprehension and speed of reading. With the IQ influenced by the degree of reading comprehension and speed it seems that a substantial correlation should exist, but it varies from .29 in grade 9, to .71 in grade 7, for comprehension, and from .14 in grade 9, to .67 in grade 10, for speed.

Using McCall's classification for the coefficients of correlation, it is found that a substantial correlation exists between the reading comprehension scores and IQ's with the exception of grades 5-6-8-9, where it is low, being .34, .32, .36 and 29, respectively. The average for the nine grades considered, however, is favorable at .48.

The correlation between the speed of reading and the IQ's varies more than the above factor. Only three grades, 7-10-12 show a desirable degree of correlation, that is, above .40. The other grades vary from .14 in grade 9 to .39 in grade 4. The average, .39, can be considered as a "substantial".

TABLE IV

Correlation Between IQ's and Educational Tests

Grade	Reading Comp.	Reading Speed	Writing	Arith.	Lang.	Spell.	Average
12	.62±.06	.46±.08	.54±.01	.54±.07	.25±.09	.41±.06	.47±.06
11	.68±.04	.36±.07	.31±.08	.42±.04	.53±.06	.38±.04	.44±.05
10	.54±.05	.67±.05	.54±.06	.56±.06	.43±.05	.49±.05	.54±.05
9	.29±.04	.14±.06	.17±.08	.21±.05	.27±.07	.25±.08	.22±.06
8	.36±.06	.33±.05	.38±.05	.40±.06	.35±.04	.38±.06	.38±.05
7	.71±.03	.47±.05	.49±.06	.52±.08	.38±.04	.43±.06	.50±.05
6	.32±.06	.36±.04	.37±.05	.41±.04	.42±.05	.38±.05	.37±.06
5	.34±.06	.37±.06	.41±.06	.38±.07	.35±.04	.40±.03	.37±.05
4	.44±.04	.33±.04	.43±.07	.24±.06	.53±.04	.33±.04	.39±.05
Average	.48±.05	.39±.05	.40±.05	.41±.06	.37±.05	.38±.05	.40±.05

The range of correlation between handwriting scores and IQ's varies from .54 in grades 10 to 12 to .17 in grade 9, and in the other grades from .31 to .43. The average for all grades, .40, shows the tendency of the group as being distinctly within the limits of a good positive correlation.

The coefficients for the arithmetic scores and IQ's rank next to the reading comprehension IQ coefficient, being .41. The highest correlation here occurs in grade 10, at .56, and the lowest in grade 9, .21. A more favorable comparison of these two factors is to be expected as several items in the intelligence test used were problems of an arithmetic nature.

The same thing is true of the language score IQ correlations. The Trabue scale is a completion test in language, testing the student's vocabulary and sense of grammar, but a lower correlation is found than with the arithmetic comparisons, the average correlation being .37. This would indicate one of two things--either the students are less capable in language in proportion to their native ability or the Otis Intelligence Test stresses more arithmetic elements than the language ones. The highest correlation between the language scores are shown in grades 4 and 11, at .53, and the lowest again in grade 9 at .21.

Next to the language IQ correlation, which is the lowest obtained, comes the spelling IQ coefficient of .38. Probably the explanation of the ranking of this relationship lies in the fact that spelling is not tested to any significant degree in the intelligence test, and is not considered as a criterion for the rating of native ability. Grade 10 leads with a correlation of .49 between the spelling scores and IQ's and grade 9 is again lowest at .25.

TABLE V (a) (32, p. 19-27)

Correlation Between Otis IQ and School Marks

Grade	Correlation	Grade	Correlation
4	.62	9	.58
5	.69	10	.36
6	.73	11	.42
7	.71	12	.42

Average Grades IV-VII, .66 Range .33 - .91
Average Grades IX-XII, .49 Range .31 - .82

Table V on page 10 shows the results of other studies involving these relationships. Comparing Tables IV and V (a), it is seen that the correlation between the IQ and school marks as determined by Jordan is considerably higher than those of the Wheatland County group. The fact that the correlations in Jordan's study were determined with school marks given by the teachers instead of being taken from standard tests may explain some of the difference, while innumerable other factors such as courses of study, different teachers, and social groups may explain others. Gordon's elementary group correlations are all higher than the local group, except in grades 10-11-12.

McCall's correlations as shown by Table V (b) below, are a great deal higher than those shown for the local group, being on the average .91, a difference of .50.

TABLE V (b) (37, p. 24-30)

Correlation Between IQ and Subjects Named

School Marks	.91
Reading	.81
Visual Vocabulary	.80
Arithmetic	.72

TABLE V (c) (32, p. 348-66)

English	.412	History	.340
Gen'l Science	.407	Mathematics	.281

TABLE V (d) (43 p. 90-102)

English	.45	Commercial	.13
History	.37	Home Econ.	.12
Science	.31	Manual Arts	.15
For. Language	.24		

Tables V (c) and V (d) show correlations obtained between the high school subjects and IQ's. Not a great deal of difference is shown between English, Science, and History, that is, between the IQ's and those subjects in the two studies, indicating the possibility of some kind of constancy.

Investigations show that choices or preferences for certain studies, "may reveal localized transient interests caused by ease or newness of the subject, by the teacher's skill, by real or alleged vocational interest, or by legislation by schools or state departments". (72, p. 334). All choices are based on interest in the subject, whether influenced by the elements mentioned by Uhl or not. In the elementary grades the choice may be attributed to the subjects taught in the different grades (usually a student's choice is expressed for subjects he is studying at the time of making his choice), the skill with which the teacher presents the subject, or the relation of the study to his other interests. High school students would choose studies more for the reasons advanced by Uhl.

In discussing and comparing the choice of studies and the mental status of the students making those choices, so few cases were to be had that the results have little significance except for local concern. It was necessary to group subjects under main headings in order to get a sufficient number of each type for comparisons in the high school, due to the smaller number of pupils included in those grades. Table VI, below, shows the distribution of choices and the median IQ for each choice for the high school grades. Under the head "Science" are included both natural and physical sciences, and under "Social Science", such studies as Sociology, Vocations, and Problems of American Democracy.

TABLE VI

Frequency of Choice of Studies and Median IQ for Each Choice
Grades 9-12

Grade	Science		Math.		Eng.		Hist.		For. Lang	
	F	IQ	F	IQ	F	IQ	F	IQ	F	IQ
12	9	106	5	105	9	104.5	3	103	4	111
11	5	104	5	102	14	106	9	105	3	107
10	5	106	9	107	9	105	8	103	6	102
9	20	114	12	99	4	106	5	111	9	107
Total-Ave.	39	107.5	31	104.2	36	105.6	25	105.5	22	106.9

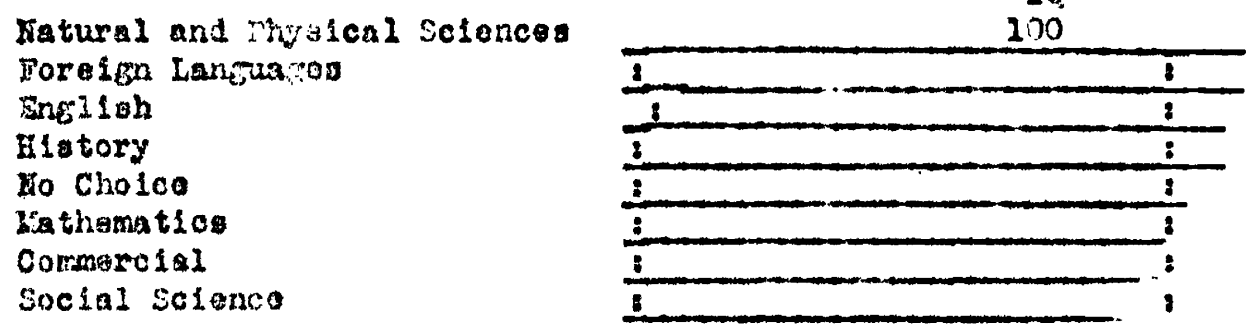
TABLE VI Con't

Grade	Comm'l F	Comm'l IQ	Soc. Sci. F	Soc. Sci. IQ	No Choice F	No Choice IQ
12	6	106	3	101	3	101
11	16	101	3	102		
10	6	108	8	100	2	110
9	1	100	4	87		
Total Ave	29	103.9	18	97.5	5	105.5

The variations by grades and so few cases will allow no definite conclusions to be drawn for each group or for even all four grades, but the rank order of choices by the group and the median IQ for each choice are apparent. The latter is better illustrated by the following chart:

CHART IV

Median IQ Rankings by Choice of Study, Grades 9-12



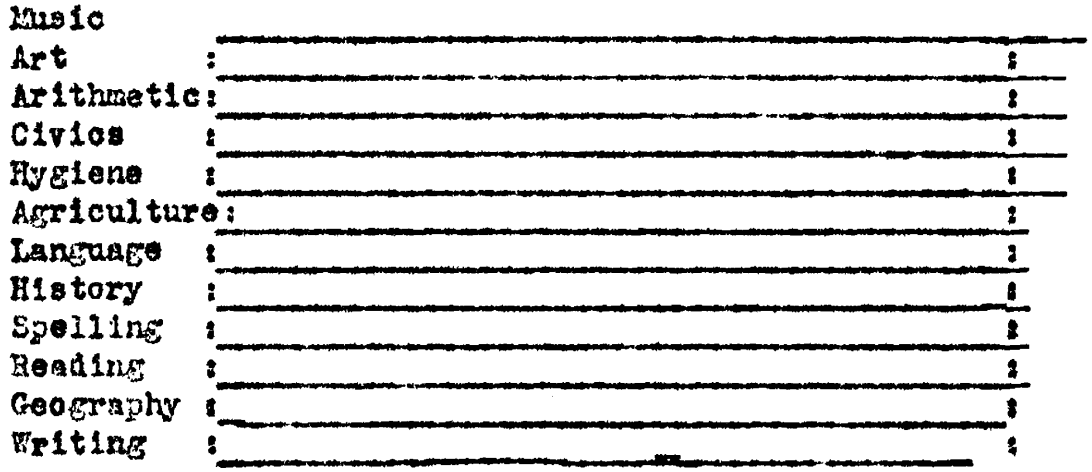
The greatest range with the high school group in question is between the choices of Natural Science and Social Science where the median IQ is 107.5 and 97.5, but as both of these lie within the normal interval, nothing alarming is evident.

An analysis of Table VII on page 14 showing the frequency of choices of studies and the median IQ for each choice for grades 4 to 8 inclusive, again brings forth variations which are difficult to explain. So many influences enter into the student's choice in these grades that it permits only theoretical conclusions to be drawn. The choices are affected by the different subjects taught in each grade under the Montana Course of Study, as well as other factors mentioned heretofore. Intercomparisons between choices and the median IQ are, as with the high school group, made questionable by the small number of

cases for some of the choices, and comparisons will be made only for comparisons's sake. The following chart illustrates the differences existing:

CHART V

Median IQ Rankings by Choice of Study



The greatest difference is between the Music and Penmanship choices, being 5.5, but as there are only three cases in each of these choices, the figures are not indicative. Even considering the IQ's for the preferences of History, Arithmetic and Reading, with 91, 94, and 76 choices expressed, the difference between the median IQ's of each subject is negligible.

TABLE VII

Frequency of Choice of Studies and IQ for Each Choice, Grades 4 - 8

Grade	Hist F	Hist IQ	Music F	Music IQ	Civics F	Civics IQ	Hyg. F	Hyg. IQ	Arith. F	Arith. IQ	Spelling F	Spelling IQ
8	20	102			13	104			19	100	6	99.5
7	15	103	1	103			4	107	20	102.4	9	101
6	27	101.5	1	108			3	101	17	103	16	102.2
5	22	99.8					2	102.6	18	101.3	7	103
4	7	100.3	1	104			6	100.5	20	102.1	10	100
Av.- Total	91	101.3	3	105	13	104	15	102.7	94	102.9	48	101.1

TABLE VII Con't

Grade	Lang. F	Lang. IQ	Read. F	Read. IQ	Art F	Art IQ	Geog. F	Geog. IQ	Write. F	Write. IQ	Agriculture F	Agriculture IQ
8	8	103.9	8	101					2	96	8	102
7	6	101.2	15	104			3	100.6	1	103		
6	1	104	7	97			12	103				
5	4	98.7	19	102	1	103	5	101.4				
4			27	103.1	9	106	9	98.7				
Ave. Total	19	101.9	76	101.2	10	104.5	29	100.9	3	99.5	8	102

An effort was made to determine the reason for stated preferences of school subjects by the students by including in the questionnaire given each one the question, "Why do you like this subject best?" The replies were classified into three groups. First, those which showed a real interest in the subject; second, those which indicated the choice by reason of the ease with which the subject could be studied; and third, those which left the question unanswered.

At first thought it would seem that the majority of students would give a variety of answers, but no difficulty was experienced in putting the answers received into one of the three groups. The answers were all brief and definite even in the lower grades. Table VIII, below, shows the results of the tabulation of the answers received, together with the median IQ for each grade and for each reply.

TABLE VIII

Types of Reasons for School Subject Preferences

Grade	Int. F	Int. IQ	Ease F	Ease IQ	None F	None IQ
12	25	107.3	4	103	10	102.5
11	32	106.2	11	104.5	12	107.3
10	36	107	2	89	16	106.1
9	44	111	4	104.5	8	109.5
8	62	103.5	18	87.5	8	107.5
7	42	104.5	31	99.8	6	104.5
6	57	105.7	26	102.4	6	103.7
5	47	105.2	30	101.5	3	106.2
4	58	102.1	30	97.5	5	98.3
Ave. Total	403	105.8	158	98.9	74	104.8

Interest seems to be the influencing factor in the choices for each grade and the median IQ for that preference is higher than the others with the exception of grades 5-8 and 11, where the median is slightly higher for those students who gave no reason for their choice.

Ease is the reply received from 158 students, and it is interesting to note that the median IQ for each grade from this type of a reply is lower than for the other two classifications with the exception of grade 12 where it is only .5 higher.

Those students who gave no reason for their choice were possibly undecided, or did not choose to answer the question. Only 74 of these answers were received.

Considering the average of the medians for each type of reply, the students giving "interest" as the reason for their study preference, rank first in mentality, those giving no reason, second, and those who selected studies which were "easy" third.

The causes for designating studies liked least by students will vary as those for studies liked best in school. Individuals, whether of a different or similar mental status, will express dislike for school study not because it happens to be a certain subject, but because of unpleasant associations connected with it. These are many, and concern the textbook used, the methods employed by the teacher, the time of day the subject is taught, and influences known, perhaps, only to the individual.

TABLE IX

Studies Liked Least and Median IQ's. Grades 9 - 12

Grade	Math.		English		History		Science	
	F	IQ	F	IQ	F	IQ	F	IQ
12	5	97	6	104	3	102.3	5	106.2
11	5	103.	13	107.5	10	104.5	4	108.
10	14	103.9	12	104.5	5	104.5	5	106
9	13	106.2	15	116.5			9	111.2
Ave.								
Total	37	102.5	46	108	18	103.7	23	107.8

TABLE IX Con't

Grade	For. Lang.		Soc. Sci.		Com'l		None	
	F	IQ	F	IQ	F	IQ	F	IQ
12	4	109.5	2	114.	3	107.2	10	104.5
11	7	111.	5	106.2	2	109.	8	99.5
10	2	111.	1	102.				105.2
9	10	107.5	5	112				107.5
Ave.								
Total	23	109.7	13	108.5	5	108.1	38	104.1

CHART VI

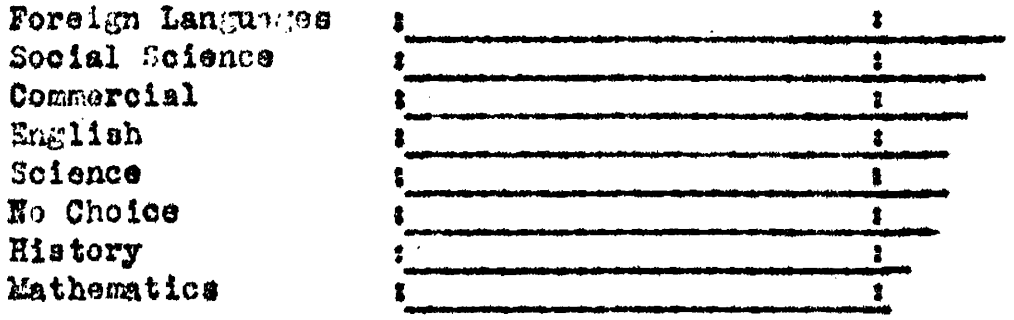


Table IX on page 16 shows these differences and supplements the discussion for the studies liked best in high school. The averages of the median IQ's vary so little that it is obvious that little can be learned of mental types from the evidence at hand. Chart VI shows graphically the differences between median IQ's corresponding to studies liked least. The range is slight, being from 102.5 for Mathematics to 109.7 for Foreign Languages.

TABLE X Studies Liked Least and Median IQ Grades 4 - 8

Grade	Music		Civics		Arith.		Agric.		History	
	F	IQ	F	IQ	F	IQ	F	IQ	F	IQ
8			16	103	15	101.	27	104.3	10	102.1
7	4	109.2			11	105.6			19	109.3
6	3	96.4			16	103.9			16	107.3
5					20	100.6			12	104.
4	7	102.8			21	104.1			4	97.
Ave.										
Total	14	102.8	16	103.	83	103.1	27	104.3	61	102.9

TABLE X Con't

Studies Liked Least and Median IQ. Grades 4 - 8

Grade	Spelling F	Spelling IQ	Reading F	Reading IQ	Lang. F	Lang. IQ	Hygiene F	Hygiene IQ	Geog. F	Geog. IQ	Writing F	Writing IQ
8	6	98.6	5	96.8	5	104.3						
7	5	102.9	6	107.1	8	100.9	9	104.3	11	106.4	4	103.9
6	13	106.	9	102.4	9	105.			13	99.2	5	106.
5	9	101.	8	107.2	3	103.6	2	101.4	16	104.9	11	105.
4	12	103.5	19	101.6	4	97.	12	103.	7	102.		
Ave. Total	45	102.4	47	103.	29	102.1	23	102.9	47	104.1	20	104.9

Grade	Art F	Art IQ	None F	None IQ
8			4	106.2
7			2	101.8
6			5	104
5				
4	4	99.3		
Ave. Total	4	99.3	11	104

CHART VII

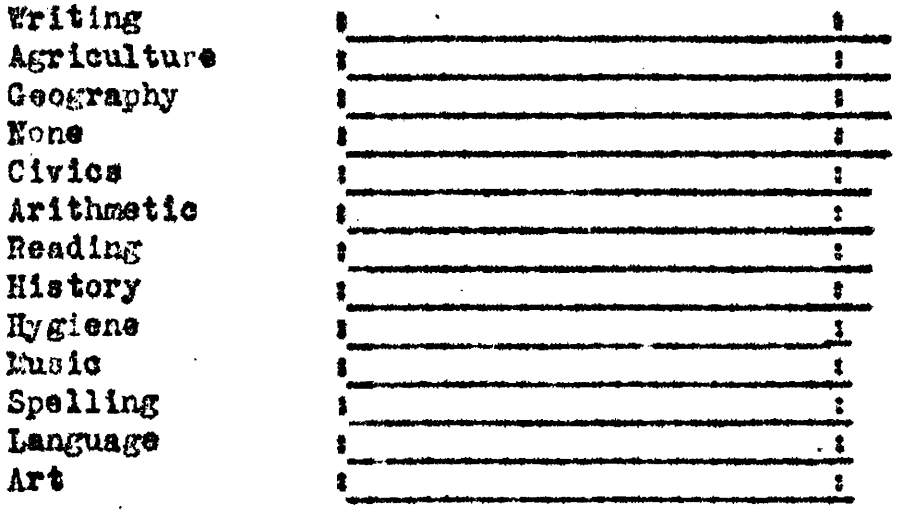


Table X and Chart VII on pages 17 and 18 show the situation for grades 4 to 8. As with the IQ's corresponding to

studies liked best in these grades, there is nothing to indicate a marked division between mental status and the different subjects designated as being unpopular. Applying a criterion as a reason for the choice in one grade does not explain the differences found in the median IQ's for that subject in other grades, and the average for all grades both in high school and the elementary grades indicates that any constancy is improbable.

As with the reasons given for studies chosen because of their appeal to the student throughout the grades considered, an analysis of the mental significance of the reasons given for studies liked least was also made. These reasons fell into one of the three groups: first, answers indicating pure lack of interest in the subject; second, those showing difficulty was being experienced by the student with the subject; and third, those giving no real reason for their decision. There seems to be no given trend in the median IQ's corresponding to the answers, by grades or as a group, as was experienced with the reasons for studies liked best. Applying a similar theory to the types of reasons for the studies preferred less, as was advanced for those preferred most, will not explain the cause for the variations shown in Table XI.

TABLE XI

Grade	No. Int.		Difficult		No Reas.	
	F	IQ	F	IQ	F	IQ
12	12	111.	11	107.	16	104.5
11	22	106.	19	107.	14	103.
10	22	111.1	7	102.	25	103.2
9	10	110.5	33	111.3	14	107.
8	42	103.6	37	102.9	9	104.
7	17	99.5	48	107.5	14	104.
6	25	94.2	53	98.1	11	89.5
5	26	97.2	46	94.5	9	97.
4	18	104.2	75	99.1	0	0.
Ave. Total	19	101.9	39	103.2	12	101.5

In Table XI the median IQ for one reason is higher than the other two for one grade, and lower in another. The average of the medians for those giving "difficult" as the cause for their dislikes, is higher than the medians for the other two causes, with "no interest" ranking second and those giving no reasons, third. Nor is there the difference shown by Table VIII existing

for the averages of the group in question, the range being only from 101.5 to 103.2. Such incongruencies make it impossible to prophesy further the meaning of the figures shown.

In studying the mental status of students planning on attending or completing high school and college, the replys to the questions, with the corresponding I.Q's for each answer, were tabulated by grades into one of three groups. (1) those planning on attending high school and college, (2) those not doing so, and (3) those undecided. It is questionable whether all the answers received in the lower grades, or even in high school are reliable, as the realization of hopes of this type depends upon the economic future of the student and his success in the upper elementary grades or high school.

The results of the Army Alpha Tests, as well as other studies, show that individuals with greater amounts of schooling make higher scores on intelligence test, than those less fortunate. It is then logical to find if a similar condition exists for those who express the desire for more education than they have. Table XII, page 21, presents facts which indicate that ambition for higher education is accompanied by greater intelligence in the group concerned. The median IQ for those planning on attending or completing high school is consistently higher in each grade than for those not. With the exception of grade 9, there seems to be a graduated scale for the median IQ from the fourth to the twelfth grade, showing a more select group in each successive grade, desiring to attend high school. It is remarkable that only thirty students, (about 5%), out of the 635 considered, do not plan on attending high school, and the median IQ for each grade in this group is significantly low.

Only three students reported as being undecided in their decision to go to high school. This could be caused by economic factors or limited success in school. These three are sixth grade students and with their median IQ at 94.5 are perhaps backward.

TABLE XII

Median IQ's and Frequencies of Groups Planning to Attend High School and College.

HIGH SCHOOL

Grade	Yes		NO		Undecided	
	F	Med.	F	Med.	F	Med.
12	59	107.	0	0	0	0
11	55	106.4	0	0	0	0
10	54	105.5	0	0	0	0
9	56	109.1	1	87.	0	0
8	86	104.	2	95.	0	0
7	72	103.5	7	92.5	0	0
6	80	99.2	6	94.5	3	94.5
5	75	98.5	6	89.5	0	0
4	85	97.2	8	84.5	0	0
Total						
Ave.	602	103.3	30	90.5	3	94.5

COLLEGE

Range	Yes		NO		Undecided	
	F	Med.	F	Med.	F	Med.
72-134	28	107.5	5	102.	6	104.2
87-132	30	108.	14	101.2	11	103.
86-144	31	106.3	11	105.	12	111.
32-131	42	112.2	9	103.	6	102.
63-133	60	104.5	16	94.5	12	103.5
67-136	55	107.	13	98.2	5	95.
64-132	54	97.8	27	86.5	8	94.5
61-126	49	97.5	32	94.5	1	106.
62-117	65	103.5	27	93.8	1	83.
Total						
Ave.	43	104.9	160	97.7	62	100.2

The average of the medians for the nine grades of those planning on attending or completing high school is 103.3; for those not, 90.5; and for those undecided, 94.5, substantiating the statement made previously.

The same theory can be stated for those whose plan on entering college, only it would be expected to be more distinctly true than is shown in the table. Here the graduation of the median IQ from the lower to the upper grades is not as constant as for those planning on attending high school, but

on the average, higher. The range of the medians is also greater, being from 112.2 in grade 9 to 97.5 in grade five. This would indicate a more desirable group of college aspirants in the former grade than the latter, but by the time the survivors of the natural elimination reach grade 9, the median IQ for their group would correspond more favorably with that of the present group.

As was not experienced with those students in the 9 grades contemplating graduation from high school - which they no doubt consider a matter of procedure - there are nearly 21 times as many students undecided as to whether they will attend or graduate from college. The median IQ for these groups fluctuates by grades due to the varying number reporting for each grade, but with the exception of grades 4- 7 and 9, is higher than for those not planning on a college career.

Studies of children's plans and hopes for their futures have resulted in a multiple of theories and conclusions, none of which is without merit, but all of which are more or less indefinite in nature. Research of this type, however, has given impetus to the awakening of interest in vocational guidance in order that social waste may be reduced by training an individual for a position in society for which he is best fitted. In this work, mental tests are becoming more and more prominent and useful. It is recognized that such tests do not perhaps discover genius in special fields, but they are valuable in measuring an individual's general mental capacity in terms of his native environment, and give an index as to his mental limitations. It cannot be said that a student in his adolescence with an IQ of 120 will make a successful lawyer or physician, but he will be more likely to make a success in one of the professions than if his IQ was below 100. Terman (28, p. 92) states, "the chances are remote that a child testing below 90 will ever be able to satisfy the requirements for college graduation —— substantial success in professions is probably achieved only by individuals above the 115 or 120 IQ class".

The prognostic value of the mental test in vocational guidance will increase in proportion to the actual determination of the ranges of intelligence in the different types of vocations. When the level, maximum or minimum, of intelligence for each vocation is found, it will then be possible to more scientifically guide children.

While choices of vocations by elementary and high school students are static as a rule, that is, when once made never change, the fact remains that associations experienced by them in their school training, home and social environment, have a prevailing influence on their choices of vocations. More and more, vocational guidance is extending downward into the elementary grades, to give children ideas which can be more easily developed through their adolescent years, and the expression of vocational choices by students even in the lower grades cannot be entirely ignored.

In considering the choices of the Wheatland County group, Table XIII, p. 24, shows the frequency of the choices by grades as well as the median IQ for that choice and grade. A glance at the table will show how hazardous it would be to attempt a conclusion from the data, due to the scattering of choices, and the variation in the median IQ's for each group, but comments on the most striking features are worth while.

Teaching has the greatest frequency in the choices, and the median IQ's for that preference are all above 100, except in grades 4 and 5. The more menial vocations are given mention mostly in the lower grades, and the IQ's for these are somewhat below normalcy. The groups undecided in their choices are present in all grades from 4 to 12 and in the upper grades particularly, well above the 100 IQ median. Only five students in the lower grades look forward to earning their livelihood as common laborers, and the median IQ's for these are low enough to indicate mental inferiority.

TABLE XIII

Choice of Vocations by Grade and Median IQ for Each Choice									
	Gr. 12	Gr. 11	Gr. 10	Gr. 9	Gr. 8	Gr. 7	Gr. 6	Gr. 5	Gr. 4
Teaching	12:103.	13:106.	15:114.5	11:116	21:103.	24:107.	19:103.	22: 97.	24: 99.5
Medecine	2:109.5	1:102.		2:124.5		1:106.			
Home	1:102.		1:115.	2: 89.5		4: 89.5	6: 89.5	1: 85.	5: 93.
Stenography	2:107.5	6:102.	2: 97.5	6:104.5	3:112	3:105.	8: 93.5	2: 97.	6:103.
Nurse	2:103.	3:111.	2: 99.5	3:102.	13:103.5	3:102.	11: 94.	4:109.5	5: 98.
Journalism	1:105.	1:126.							
Bookeeper	1:106.				1: 87.5			2: 84.5	
Business	1:116	1:103.	1: 97.5		1: 86	2:100.	2:99.5	1: 93.	4: 90.
Electricity	3:107.5		1: 94.	2:104.5	2: 94.5		4: 89.5	2: 89.5	1: 94.
Aviation	1: 97.	2:107.	2:110		1:117	7:103.	2: 93.5	5:103.	2:107.
Law	1:106.			1:107.					1:100.
Undecided	12:111	21:107.5	19:107.2	16:116.5	24:103.5	5:111.	2: 99.5	2: 93.	3:103.
Banker		1:110.	1:115					1: 97.	
Clerk		1: 97.			3: 83.		1: 61.	2:111.	
Mechanic		1: 90.		3:105.		5: 87.	2: 99.5	1:105.	3: 93.
Farming		1:85.	3:97.5		10:109.5	16: 98.	20: 94.	17: 94.	21: 97.5
Pharmacy		2:120.	1:107				1: 85.		
Engineering			4:106	1:116.	5:102.5	4:109.5	3: 97.5	2:104.5	6: 97.
Music			3:102				1:102.	1:120.	
Salesman				2:107.5			1:131.	2: 83.	6: 94.5
Carpentry					1:103		2: 94.5	1: 77	1: 98.
Author					1: 94				
Railroad					2: 99.5		1: 85.	2:103.	
Laborer						2: 87.5		1: 65.	2: 98.
Tel. Op.						1: 97.		1:101.	
Forestry						1:114.	3:115.		
Dancer							1: 90.		
Sailor							1:120.		
Dentist							1: 92.		
Telegrapher								1: 94.5	
Policeman								1: 97.	1: 95.
Actor								1:107.	1: 97.
Mail Carrier								1:107.	
Plumber								1: 87.	1: 77.
Art								1:120.	
Pugilist									1:103.

It is impossible to evaluate the figures found in Table XIII in terms of each vocation. It would be better perhaps, for comparisons, to classify the chosen vocations into larger groups and compare these groups with the intelligence ranking of similar ones.

Pressey and Ralston (53, p. 366-73) tested 548 children and calculated the percentage of each of the four father's occupational groups which tested above the median, with the following results:

OCCUPATION OF FATHERS	
Professional	85
Executive	68
Artisan	41
Laborer	39

Here, the children coming from homes whose fathers are of higher standing on the occupational scale rate correspondingly higher in intelligence.

Classifying the choice of vocations as shown by Table XIII into the four divisions in the Pressey-Ralston study, and averaging the median IQ's for the different vocational choices as they fall under the four heads mentioned above, we have the following differences.

CHOICE OF VOCATION	F.	Av. IQ
Professional	208	104.8
Executive	28	101.1
Artisan	178	99.5
Laborer	118	95.4
Undecided	103	105.6

The occupational or vocational choices of the Wheatland County group have the same rank on the scale of intelligence as the children whose fathers are members of the vocational groups, mentioned in the Pressey-Ralston study. While the difference is not as pronounced as in the latter study, due to the rankings of the groups being in different units, the rank order of the arrangement of the local group is somewhat significant.

Most children's choice of a vocation is determined, as has been mentioned before, by their school training, home and social environment. The more favorable these conditions are, usually the higher the mental status of those concerned is, and the higher the vocational choice will be. The ranking of the pupils who have not yet decided on their life's work is higher than those making choices coming under any one of the four vocational heads considered. This would indicate one of two things: either they have given no thought to their future or else they are deliberating carefully and will make a more beneficial decision than perhaps those who already think they know what they are going to do. With the high average obtained from the medians of this class of students, it seems that the latter theory is the more likely.

In classifying the avocational preferences expressed by the students of the group studied, an attempt was made to group the interests together as much as possible so as to facilitate a more sound analysis of the mental trend of the choices. Such choices as "studying" and "reading" were combined under Reading, while "playing", "hunting", "hiking", and other usual outdoor activities were listed under Out-of-Doors. Music and Athletics were signified quite clearly and had a sufficient number of cases to be considered as separate choices, as well as Art. Those replys expressing no preferences were considered as Undecided, and such answers as "make things", "fool with engines", and the like, were put under the heading, Mechanics. The activities listed under Home were those pertaining to home life essentially, as "sewing", "caring for children", "keeping house", and others. Table XIV below shows these choices.

TABLE XIV

Grade	Reading F	Reading IQ	Outdoors F	Outdoors IQ	Music F	Music IQ	Athl. F	Athl. IQ	Art F	Art IQ
12	20	106.	6	109.5	1	111.	4	99.5		
11	25	107.	11	106.	4	108.	5	102.		
10	25	105.	11	117.	2	111.	4	94.5	3	106.
9	24	107.	11	114.	2	117.	2	121.	2	119.5
8	34	103.	26	103.	7	98.	4	104.5	3	101.
7	32	108.	22	106.	2	98.	6	104.5	3	106.
6	30	97.5	31	94.5	1	111.	15	93.	1	86.
5	40	98.5	25	94.	2	117.	4	103.	3	122.
4	20	93.	39	98.5	2	99.5	5	104.5	6	94.5
Total: Ave.	250	103.3	182	104.7	23	107.8	49	102.9	21	105.

TABLE XIV Con't

Grade	Choice of Avocation and Corresponding IQ's: Undecided F	Undecided IQ	Mechanic F	Mechanic IQ	Home F	Home IQ
12	8	107.5				
11	7	107.	3	103.	2	
10	4	106.5	3	115.	2	104.5
9	12	104.5	2	124.5	2	94.5
8	3	104.	6	99.5	5	94.
7	3	97.	7	103.	4	99.4
6			3	89.	5	98.5
5	1	116.	3	94.	3	92.
4			4	78.	16	98.
Total						
Ave.	38	106.1	31	100.6	37	97.2

Reading leads the choices in frequency, and has a fairly constant median IQ from grades 12 to 6, where it goes into the lower average rating; for the remaining three grades it hovers around 98. This type of an activity is a wholesome one and is engaged in by an average group mentally, mostly girls, and a more serious minded and studious group of boys. If the reading is of the proper type the leisure time is spent profitably.

A more marked variation of medians is observed by grades among the Out-of-Door type. Here are more activities than were considered under Reading, and consequently less uniformity. As with the Reading medians, there occurs a change in the median interval in grades 4-5-6, though somewhat lower.

Students with a marked interest in Music appear to be the most consistently superior in mentality — another instance of intellectual environment — the median for grades 5-6-9-10 and 12 being in the 110-119 interval, and the average for all grades ranking first mentally but with only 23 choices considered.

The medians for those chosin athletics as an avocation show the most uncertain tendency. It varies to such an extent by grades that it makes it difficult to advance a reason for the cause. Stuients usually caring for this sort of an activity are of the "physical" type rather than the "mental", but the average of the medians ranks the athletics next to those who spend their leisure time in reading.

Art, with its formal meaning would indicate interest from a more select mental group, but the interpretation of the word cannot be taken in its strictest sense, as it concerns only those replys of children who like to "draw pictures", "paint pictures", etc. The median IQ for this choice indicates nothing definite, as they vary by ages and grades. The average, however, is in the "upper average" interval of 105.

Possibly in the Undecided group will be found those children who have varied interest or who have never given any thought to the choice of a vocation. The median IQ for this class is favorable except possibly in grade 7. No indecisions were received for grades 4 or 6, and only one for grade 5, showing that even at an early stage in their school career, children are forming likes for hobbies, and expressing different interests.

Boys' choices are considered mostly under the Mechanic classification. These cases constitute the more manual tendencies but reveal nothing unusual except in the lower grades, the medians being somewhat lower than for any other group. The average median, 100.6, indicates a normal group mentally.

The most striking medians come under the Home activity choice. Restricted entirely to girls, with no choices made for this wholesome training in grades 11 and 12, the median IQ, though based on only a few cases in each grade, is consistently lower than in the other groups. The average for the seven grades, involving 37 choices is only 97.2, the lowest experianced.

There is an abundance of evidence available to prove the theory that individuals from different geographic divisions of the country will vary in degrees of intelligence, as determined by the present tests. This is due to educational and environmental influences affecting the individual's response to the tests and has to be considered optimistically.

In considering the mental status of children born in the various states, but now residing in Wheatland County, it was necessary to tabulate the birth places and their corresponding IQ irrospective of school grades in order to obtain as many cases in one group as possible. Even then it was impossible to obtain enough cases with the birth places in the different

states to arrive at any definite conclusion, or substantiate other studies than have been made of adult minds.

The results of the foremost of these studies is shown by Table XV, page 30, taken from the army report, based on the median Alpha scores of 40,530 white men. (23, p. 455). There is a marked difference between men from the Northern and Southern states, showing inequalities in educational, economic and social opportunities, more than difference in intellectual ability.

Montana men rank ninth from the top in Table XV in the army survey, and by coincidence, the Whoatland County children have the same rank with respect to their birthplaces, considering those states in which ten or more children were born, as shown by Chart VIII, page 31. The data will not allow interpretation beyond the supposition of coincidence, as further examination will show a disarrangement by states both above and below Montana's rank, and not in accordance with the arrangement shown by Table XV. It is then obvious that little information is to be had by inter-state comparisons with the local group.

In further considering the differences in intelligence scores from different geographical locations, Bagley (23, p. 179-87) shows that they contradict the racial hypothesis which is used to account for the difference. Such states as Connecticut and Massachusetts with a large foreign population stand in the upper quartile of the states, while the Southern states are consistently low, though they are inhabited by the purest Nordic stock in the nation. The combined average scores of the Northern negroes is higher than in Arkansas, Kentucky, and Mississippi. Such facts will account for the geographic differences only if it is assumed that the more intelligent people migrate to the North and the others Southward, which is very improbable.

Further, if the geographical location of individuals does affect their mental ability, or if those individuals from different parts of the nation vary in native ability due to the other factors influencing their lives, then it is to be expected that the offspring of the parents so affected will show the effects of geographical variation in intelligence.

TABLE XV

Median Scores by States from Table 200 of the Army Report

State		State		State		State	
Ore.	79.9	Ohio	67.3	R. I.	62.9	Tex.	50.9
Wash.	79.2	Me.	67.0	N. H.	61.9	N. J.	48.7
Calif.	78.1	Neb.	66.2	Mo.	59.5	S. C.	47.4
Conn.	73.6	Penn.	65.1	S. D.	58.3	Tenn.	47.2
Ida.	73.5	N. M.	64.5	N. D.	57.1	Ala.	46.3
Utah	72.2	Ia.	64.4	Wisc.	56.5	La.	45.2
Mass.	71.6	Minn.	64.0	Va.	56.3	N. C.	43.2
Colo.	69.7	Kan.	63.9	Md.	56.2	Ga.	42.2
Mont.	68.5	Ill.	63.8	Ind.	56.1	Ark.	41.6
Vt.	67.5	Mich.	63.3	Okla.	57.5	Ky.	41.5
						Miss.	41.2

So few cases are to be had in this study concerning the above question that it will be impossible to affirm or disprove it, but it presents an interesting problem. As was with the birthplace - IQ comparison of the students themselves, irregularities occur in the comparison of the IQ's of the children and the birthplaces of both parents.

Table XVI, page 32, shows these differences. The birthplaces of both parents and the IQ of each child were tabulated and the median IQ for each state or country determined.

The median IQ's corresponding to the father's birthplace by states were arranged in their rank order and the median IQ of children whose mothers were born in the same states were placed in the adjoining column. The comparison reveals no startling differences even with so few cases. Where there are more than ten cases for both fathers and mothers, for each state or country, with the exception of the state of Nebraska, the difference of the IQ's of the children are not of a magnitude great enough to cause a different verbal classification to be given to the children of either fathers or mothers. That is, the children of fathers born in the various states have the same verbal classification as the children of mothers born in those states. They all fall in the "average" group, although there is a slight difference in the numerical value of the IQ of each. In the case of Nebraska, the 20 children of mothers born in that state are in the "above average" group, their median IQ being 111, while the 25 children whose fathers' birthplace was in Nebraska, fall in the "average" group, their median being 102.5. Again, coincidence must be called

upon to explain the situation, as the small number of cases is not indicative of the general conditions.

CHART VIII

Median IQ's of Children Born in Various States.

State	Freq.	60	80	100	Med. IQ
S. Car.	2				122
W. Va.	1				120
Ohio	1				117
Utah	1				111
Maine	1				110
Wash.	13				105
Ill.	22				105
S. Dak.	24				104
Minn.	24				104
Nebr.	13				104
Ga.	3				103
Mo.	11				103
Ken.	2				103
Idaho	5				103
Canada	11				102
N. Dak.	22				102
Mont.	401				101.3
Mich.	2				101
Iowa	38				99.5
Wisc.	11				99.5
Kansas	5				98
Wyom.	3				98
Tenn.	3				96
Md.	1				96
Col.	2				94
Ind.	8				92
Okla.	3				87
Calif.	1				74
Fla.	1				67

As with the birthplaces and corresponding IQ's of the children themselves, it is seen that Southern states are well mixed with the Northern ones in rank order, which is no doubt accounted for by lack of numbers of children whose parents were born in those states.

TABLE XVI

Distribution of Childrens' IQ's by Fathers' and Mothers' Birthplaces.

State	Fathers F	Fathers IQ	Mothers F	Mothers IQ	State	Fathers F	Fathers IQ	Mothers F	Mothers IQ
Wash.	3	115	8	107	Minn.	53	102.5	56	106.5
W.Va.	2	114.5			Ark.	2	102		
Mass.	1	111			Md.	2	102		
Ky.	9	109.5	9	102.5	Penn.	10	102	3	114.5
N. Y.	12	107	5	106	Tenn.	6	102	11	104.5
N. D.	13	106	33	102	Col.	1	101	6	109.5
Ga.	9	104.5	7	102	Utah	2	101	2	105
Mo.	45	104.5	54	105	Calif.	1	100		
N. C.	9	104.5	4	94.5	Ill.	52	99.5	51	103
S. D.	18	104.5	30	101	Ind.	9	99.5	12	94
Wisc.	31	104.5	30	99	Kans.	9	99.5	6	103
Ia.	79	103.2	55	98.3	Va.	3	99.5	6	103
Mont.	63	103	63	101.5	Mich.	5	99	16	104
Ohio	13	103	11	104.5	Me.	3	98	2	94.5
Nebr.	25	102.5	20	111	Ore.	2	97	1	86
					S. C.			3	98

Foreign Born

Country	Fathers F	Fathers IQ	Mothers F	Mothers IQ	Country	Fathers F	Fathers IQ	Mothers F	Mothers IQ
Switz.	1	121	2	106	Germany	16	101	14	103
Sweden	15	103.5	7	103	Norway	25	99.5	16	97
Canada	20	106	22	104.5	Ireland	3	98	3	106
Nov.Sco.	1	106			Scotland	12	97.5	2	89
Poland	2	105	1	110	Belgium	2	94.5	4	95
Denmark	6	104	5	111	Italy	5	94	5	93
Checo)					Japan	4	92	5	94
Slav.)	5	103	2	109.5	France	2	88	2	93
Holland	13	102.5	12	101	Wales	1	78	1	76
Eng.	13	102	1	111	Russia			3	97

The mental ability of children of foreign born parents on which ten or more cases were obtained does not showanny racial distinctions worthy of significant comment. Children of fathers born in Canada, which can be compared with our northern states, compare closely to those whose fathers were born in North Dakota, while the children whose mothers were born in the Dominion rank with those whose mothers were born

in Ohio. Dutch and German born parents have children who compare favorably with those of parents born in Nebraska, Minnesota, and South Dakota, and the Norwegian children of parents born in that country rank with children from Illinois, Indiana, Kansas, and Virginia. This is a severe comparison based upon the medians which are exactly the same, considering only those instances where ten or more cases are involved, and therefore cannot be interpreted with any degree of concern.

It is recognized that racial differences in mental capacities exist, history and the economic and social development of the different countries will prove that, but sufficient research has not yet been made to determine the amount, or nature of these differences. With our present methods of measuring mental ability, it is hardly equitable to attempt a classification of the races, when so much of the individual's success with the intelligence test, depends upon his education, training, and environment in our own way of thinking. These elements differ so radically in various countries that an attempt to arrive at definite conclusions in regard to the question can only lead to fallacy at present.

The explanation of the lower medians for children whose parents were born in foreign countries is explained by one of three theories. Either they are of poor stock; their home environment is not in accord with American standards; or the small number concerned just happen to be inferior, and consequently will not allow further analysis.

In obtaining certain information pertaining to the social life of the children in this study, an effort was made to obtain from each one a statement of the amount of their father's yearly income in money. It is realized that an accurate statement of this type is difficult to obtain, because the lack of willingness of some parents to divulge the information, and the uncertainty of the amount of yearly income in many homes, due to differing economic conditions. The children were asked to obtain the information the day before they were given the questionaire, and the figures were later adjusted by teachers and others, familiar with the children, to correct obvious mis-statements of the amounts. It was found convenient to classify these amounts into five groups, namely: $ 500-999, 1000-1999, 2000-2999, 3000-3999 and 4000-

4999, for comparison purposes, and considering the size of the interval of the groups, the information is accurate enough to use as part of the hypothesis that children coming from parents in the more renumerative occupational groups are as a whole more mentally acute. This is another proof of the inherited native capacity theory, in that the more highly paid workers are more intelligent than the lower paid group, because their activities demand a keener intellect. These more selected people mate together and their offspring show the characteristics of the parents in this respect.

Table XVII, below, verifies the above statements, by showing the median IQ's of the children consistently higher as the fathers incomes are greater. The distribution of the different amounts of income are as would be expected in a locality of the type in question. While the differences in the median IQ's are not enough to allow a distinct group classification, the difference in the numerical value is enough to warrant recognition. Only one case was reported and verified as being $4000-4999 class. The IQ corresponding to this figure happens to be 105 but has no meaning.

In examining the relation of the children's mental status to their father's occupation, it is to be expected that children from the higher occupational groups will have the more favorable standing mentally.

TABLE XVII

Distribution of Children's IQ's According to their Father's Income.

500-999		1000-1999		2000-2999		3000-3999		4000-4999	
Freq	IQ	Freq	IQ	Freq	IQ	Freq	IQ	Freq	IQ
47	96.2	445	101.8	124	106.1	18	109	1	105

TABLE XVIII

Median IQ's of Children, According to Father's Occupation.

Fathers Occupation	F.	Med. IQ	Fathers Occupation	F.	Med. IQ
Painter	1	115	Salesman	19	104.5
Tailor	1	115	Mechanic	22	104.5
Dentist	3	112	None	8	103
Printer	8	112	Officer	3	103
Carpenter	11	110	R. R. Worker	88	102
Minister	2	108	Lawyer	5	102
Doctor	5	107	Farmer	327	101.2
Merchant	32	107	Electrician	6	101
Clerk	19	106	Laborer	67	96.2
Printer	3	105	Forest Ranger	5	92

Colvin and McPhail, (16, p. 1ff) in a study of 2532 seniors in the high schools of Massachusetts, compared the Brown University psychological examination scores with the occupations of their fathers, divided into the seven groups as shown below.

TABLE XIX

Professional	50.9	Salesmen and Clerks	45.0
Clerical Worker	47.7	Skillled Artisans	44.5
Business Executive and Foreman	46.8	Day Laborers	42.4
		Farmers	42.0

Here is shown the distinction mentioned above and confirmed by other studies. In explaining these differencesiit is well to consider that the above table included only 4% of the total number as clerical workers, and the classification of foremen with business executives no. doubt affected the average for that group. The farm children having such a low rank is accounted for by the poorer class of parents on the small farms of Massachusetts. Usually they are slightly higher in intelligence than the children of unskilled laborers.

The occupations of the fathers in Wheatland County and the median IQ's for the children of those fathers, are shown by table XVIII, above. Taking the occupations in the rank order of the IQ corresponding to them, it is impossible to ascertain the true causes for the variations, again due to the

small number of cases in each group, but the wide range of differences is noticeable. By grouping the occupations as done by Colvin and McPhail, and averaging the medians for each group, the results will be questionable, but this is the only means of making a comparison with the data in Table XIX. The medians too, are determined by a less selected group than high school seniors and this will no doubt influence the results.

The following table show the rearrangement of the various occupational groups.

TABLE XX

Occupation	F.	IQ	Occupation	F.	IQ
Business Executives and Foremen	32	107	Deceased	8	103
			Farmer	327	101.2
Professional	15	106.7	Clerical	3	103
Skilled Aritsans	145	106.1	Day Laborer	67	96.2
Clerks &Salesmen	38	105.2			

While the order of the groups are not as was found by Colvin and McPhail the differences are small, with the exception of the farmer-laborer group, where the order is not only reversed, but a difference of 5 points exists in the intelligent quotient. Eight children reported their fathers as being deceased, and gave no mention of their mother's means of earning a livelihood. These children have the same status as those of the clerical workers. A difference of 10 points exists between the two extreme IQ's which is enough to cause concern even when considering the probable error in determining the relationships and the small number of children studied.

A varying amount of mental ability is required of the agricultural group where it is not by the common laborer. When to sow and harvest crops, methods of tilling the soil, implements to use, and a general knowledge of farming conditions, are necessary to workers in the former class, which requires more thinking power than the latter type ordinarily have to possess. If it is granted that the farming group are more intelligent as a whole, than the common laboring classes, it follows that the children of these people will be better, much better , equipped mentally , of course, for their

place in society, and bears out the relationship between the occupations of fathers and the intelligence of their children.

More attention has been given to the mental status of children based on the father's occupation, than the mother's pre-marriage occupation. If the father's occupation reflects his mental ability to some extent, it follows that the mother's work before she was married would indicate somewhat her position on the occupational-intelligence scale. Probably the father's occupation remains more static than the mother's line of activity before her marriage, but usually matings take place in the different levels of the social strata, where environment and tastes are mutual for both parties. Whether the children will inherit more of the father's characteristics than the mother's depends on the biological elements concerned. It is therefore necessary to consider the mother's pre-marriage occupation if we use the occupational scale as a criterion for judging mental ability of children coming from these different groups.

In listing the pre-marriage activities of mothers as shown by Table XXI, below, they were easily classified into one of the fifteen groups. Those coming under "Home" work are those who "stayed at home", "helped at home","worked at home" etc. The other are self-explanatory with the exception of "None" and "Labor". Under the former were considered those replies giving no information, and under "Labor" come such classes as "worked out", "scrubbed", and the like. As with the requested information about the father's income, the children were asked to obtain a statement from their mothers regarding her work before her marriage the day before they filled out the questionaire in order to obtain more satisfactory responses, and the answers are undoubtedly accurate enough to permit investigation.

TABLE XXI

Distribution of Children's Median IQ's according to Mother's Pre-marriage Occupation.

Occupation	F.	IQ	Occupation	F.	IQ
Factory	10	110	None	9	103
Teaching	91	108.7	Home	345	101.9
Student	28	106	Tel. Op.	15	97
Nurse	17	105	Printer	1	95
Dress Making	13	104.5	Milliner	2	94.5
Bookkeeping	8	104.5	Laborer	19	93
Stenography	12	104	Cook	5	91
Clerk	59	103			

The factory workers indicate they are the mothers of better developed children, though they are few in number, and it was not learned what kind of factory work they were employed in. Teachers and students rank next. The former are naturally a more selected group to have satisfactorily completed the requirements for their teaching certificates, and the latter, even though they married at an early age, were fairly well advanced in school, and consequently more liberally endowed with intelligence. Nurses, clerical workers, trades-women, and common laborers rank in the order to be expected, with the "home" group at 101.9. These groups being fewer in number give much more evidence to support the class theory than did the father's occupation, and probably have an equal amount of importance. They can be more accurately grouped under the classification used by Colvin and McPhail.

In doing this, the home class was put in the labor class; teaching and students in the professional; nursing, dressmaking, telephone operating, printing, cooking, factory, and millinery in the artisan; and bookkeeping and stenography in the clerical, leaving the clerking group for the fifth classification. This arrangement is somewhat arbitrary but will serve for the comparison desired.

TABLE XXII

Occupation	F.	IQ	Occupation	F.	IQ
Professional	119	107	None	9	103
Clerical	20	104.2	Artisans	54	99.4
Clerks	59	103	Labor	364	97.4

Here the order of the occupations correspond to the order shown by Talbe XIX more favorably than did the father's occupation. Again a difference of 10 points is seen between the IQ's of the labor and professional groups, as was found with the fathers!

The professional groups for both mothers and fathers have practically the same median IQ, being 107 and 106.7 respectively. The clerical, clerk, and labor groups are likewise close together, but the artisan mother's children are lower than those of the fathers.

Considering the average of the medians for both occupational groups of the mothers and fathers, the following results are observed: The medians for the "deceased" group of

the fathers and the "none" groups of the mothers, both being 103, are taken together, under the heading "none", to simplify the procedure and perhaps validate the figures for these two groups. There are, of course, no business executives and foremen, or farmer classifications with the mother group, and this may affect somewhat the order, but it is unavoidable.

TABLE XXIII

Occupations	F.	IQ	Occupations	F.	IQ
Business Executive and Foreman	32	107	None	17	103
Professional	134	106.8	Artisans	209	102.8
Clerks	97	104.1	Farmers	327	101.2
Clerical	23	103.6	Laborers	431	96.8

The order of the combined vocations and median IQ's is slightly changed but to no significant degree. Business executives and foremen, not present in the mother's group, rank first as they did with the fathers in this study, but third in Colvin's and McPhail's, though the difference is not so pronounced. The professional group rank first in the latter study, and also first with the mothers, But second with the fathers. The children of the artisans come fifth with Colvin and McPhail, third with the fathers of the local group and fourth with the mothers. Those from the mother's laboring class, when averaged with those of the fathers of that class are again the lowest in rank, coming below the farming group. The others are distributed rather consistently between the two extremes.

In studying the intelligence of children having various advantages, both economic and social, information was obtained by the questionaire used, relative to the status of the ownership of their homes; whether they had music in their homes, newspapers to read, a bible or other religious book, and at least ten books in their home library; whether they attended Sunday school and church, and a statement from their teacher, if to their knowledge, the child used tobacco or liquor. For convenience in tabulating, the answers were interpreted by grades.

It is generally recognized that the matter of renting or owning homes in a settled, growing community, is deter-

mined by the economic standing of the people, and the future that the community or location hold for them. Usually the more settled, stable, and economically secure people are the property owners. By enjoying this security they are as a rule, by virtue of their positions, the more intelligent classes and their offspring should be correspondingly superior.

TABLE XXIV

Median IQ's of Children Whose Parents Rent and Own their Homes

Grade	Rent		Own		Grade	Rent		Own	
	F.	IQ	F.	IQ		F.	IQ	F.	IQ
12	13	106	26	107.5	7	45	102.6	34	101.5
11	27	102.6	28	107.1	6	36	100.6	53	102.8
10	21	97.8	33	101.6	5	34	98.8	47	103.2
9	28	102.2	29	101.5	4	44	96.3	49	99.1
8	45	101.5	43	103.2	Tot.Av.	293	100.9	342	103.1

The results of the data in Table XXIV, above, seem to bear this out, even though only to a slight degree. With the exception of grades 7 and 9, the median of children whose parents own their homes is higher than those whose parents are not so fortunate. The average medians for all nine grades is 2.2 higher for the former than for the latter. This may or may not be significant, depending upon the importance attached to a variation of a few points in the intelligent quotient. If this variation can be construed to mean a higher or lesserdegree of superiority in the different mental groups, then it is permissable to conclude that the children coming from the parent-owned homes, taken as a group, are somewhat of a higher classification than those children coming from homes which are rented by their parents. Forty-nine more children were considered from the owned homes than from the rented ones, and with 342 cases, it seems that the median, 103.1, as compared to 100.9, based on 293 cases, shows a substantial difference in value, favoring the children from parent-owned homes.

Eighty-three students in the county report having no musical instruments available with which to develop their skill or appreciation. The reasons for this condition may be attributed to the financial status of their parents, or to their lack of feeling for music. With the cost of musical appliances, now within the reach of everyone; with the popularity of the radio, and the increasing amount of recognition

being given music in our school curriculums, the lack of interest in this stimulating recreation is no doubt due to the parents not being on a high enough social plane to recognize the value of music.

TABLE XXV

Median IQ's of Children With and Without Music in their Homes

Grade	With		Without		Grade	With		Without	
	F.	IQ	F.	IQ		F.	IQ	F.	IQ
12	36	107.2	3	103	7	68	103.7	18	98
11	45	106.8	10	94	6	75	98.7	13	92
10	50	105.1	4	104	5	67	97.8	14	96.5
9	50	104.1	7	98	4	80	97.1	13	97
8	80	104.5	8	1065	Tot.Av.	552	102.8	83	98.6

While the frequency of children without music in their homes perhaps does not allow a severe comparison by medians, it was found that scores above the median were limited in magnitude and fell mostly in the low average group. Table XXV, above, shows the results of the comparisons in tabular form. In only one grade, grade 8, is the median for the children without music, higher than those with. In this grade it so happened that the median IQ of the eight considered centered around 107, the lowest being 83. In all other grades the medians are considerably higher for the musical groups, and the average is decidedly higher, being 4.2 points above that for the less fortunate children.

The IQ's of the children without newspapers in their homes vary greatly by grades as shown by Table XXVI.

TABLE XXVI

Distribution of Childrens' IQ's for Homes with no Newspapers.

Grade	F	IQ's
10	2	91-103
9	1	127
8	2	82-87
7	2	109-119
6	1	94
5	1	103
4	8	78-80-80-88-91-94-101-110

Here, with the exception of grades 4 and 8 the figures are confusing. In these two grades, there is an indication of inferiority, particularly in grade 4, while in the other grades near and above normal IQ's are observed. Grade four, having the more unselected children, would reveal more sub-normal cases. With so few cases it is again hazardous to advance any conclusions from this influence, but it is obvious that the averages or medians of the IQ's in grades 4-6-8 and 10, are below the average or medians for the whole grade, or the group more favorably situated, to be in a position to have newspapers. The cases in grades 5-7 and 9 being only as they are found, exceptional, and not meaningful.

A similar study, as with the newspapers, was made of the mentality of children without a bible or other religious book in their homes. Again, such cases were so rare that the numbers will not be convincing statistically. Twenty children reported this shortcoming in their lives, the number seeming to decrease in the upper grades. No students in grades 8-9-10 reported the deficiency, while nine were found in grade 4 with it.

TABLE XXVII

IQ's of Children Without Bibles in their Homes

Grade	F.	IQ's	Grade	F.	IQ's
11	1	103	5	5	72-90-93-97-112
7	2	83-95	4	9	61-78-88-91-94-96-100-101-115
6	3	65-88-98	Total	20	Av. 91 Med. 94

The sub-normalities of children coming from this class of homes is shown by the above table. All but five, have an IQ of below 100, and the medians of the groups by grades, is, in every case, below the median for that grade as a whole. The average IQ for the twenty students being 91, and the median 94, shows the group to be on the borderline of backwardness, and the distribution well into the lower divisions of mentality.

A larger number of students are without even limited library facilities, than are without newspapers, and religious references in their homes. Sixty five students reported that fewer than 10 books were to be found in their home libraries. The number varied a great deal by grades. One case is to be had in grades 9, and 12, and twenty one in grade 4, with the intervening grades making up the total number. It was unsat-

isfactory to consider the cases in the high school grades, due to the lack of numbers, but the cases of the elementary grades are somewhat impressive. Table XXVIII shows these differences.

TABLE XXVIII

Median IQ's of Students with Limited Home Library Facilities

Grade	Freq.	IQ	Grade	Freq.	IQ
12	1	104	8	7	98
11	3	111	7	7	96
10	5	106	6	13	85
9	1	116	5	7	90
			4	21	97

In the high school grades, nothing is found to point to sub-normality, but in grades 4 to 8 is observed a tendency somewhat below normalcy. The lowest median is in grade 6, where with 13 cases, it is 85. The other grades, with their medians all below 100, and below the median for the grade as a whole, show a slightly inferior group, even though based upon only 55 cases.

An analysis of the religious preferences and affiliations of the children reveals a number of different religious denominations represented. A few of those denominations do not maintain Sunday Schools for the younger members of their congregations, offering instead, the regular church services, which the children—those who engage in religious activities—usually attend with their parents. With this in mind, it will not be desirable to compare the intelligence of children attending and not attending Sunday School, but a comparison is permissable between those attending and not attending religious services in the Church. Table XXIX, below, gives the standing of these groups.

TABLE XXIX

Median IQ's of Groups Attending and Not Attending Church.

Grade	Attending		Not Attend		Grade	Attending		Not Attend	
	F	IQ	F	IQ		F	IQ	F	IQ
12	25	107.2	1.4	106.4	7	45	108.1	34	103.4
11	45	108	1.0	106.5	6	53	98	36	97
10	37	106	17	107	5	42	98	39	96.5
9	37	111	20	114.5	4	36	104	57	97
8	68	103.2	20	99.5	TotAv	388	104.8	247	103.1

The medians for children attending church, appear to be higher to a slight extent in all grades except in grades 9 and 10, where the difference is about the same as for the other grades. The average of the medians is likewise higher by 1.7 points for the church goers. The greatest difference occurs with the fourth graders where it amounts to 7 points. Beginning with the eleventh grade, the number not going to church increases as the lower grades are considered, until in the fourth grade , it exceeds the number attending church, and the median in this grade is the lowest except for those grades 5 and 6.

A gradual decline in birthrates among the higher social groups has been observed for many years, until today there is no question that the higher classes are shirking this responsibility. Ross, (58 p. 34) attributes this decline to: (1) A large family impedes the "Rising in Life", (2) The gratification of more wants, (3) The emancipation of woman, and (4) The knowledge of means of birth control. The first three reasons are typical of the more intelligent and ambitious groups, and perhaps are not experienced as a rule by the less fortunate classes. This accounts for the larger number of births occurring in those classes. As evidence of this, Bertillon, (47 p. 180) in a study of birth conditions in three European cities found that the size of families varied inversely as the economic status of the parents, as shown by the following table. The figures are based on births per 1000 women between the ages of 15 and 50, and while European families are as a rule larger than ours, the American groups will no doubt possess the same characteristics.

TABLE XXX

Births per 1000 Women of Different Social Classes.

	Very Poor	Poor	Well Off	Very Well Off	Rich	Ex.Rich
Paris	108	95	72	65	53	34
London	147	140	107	107	87	63
Vienna	200	164	155	153	107	71

Granting that the larger families are as a rule lower on the social scale, and consequently the less intelligent, it follows that children from these families will likewise vary in intellect.

In considering the Wheatland County group, the absence of numbers will not permit an absolutely convincing investigation to be undertaken, and comparisons will simply show conditions for this particular group, but no doubt reveal conditions which are somewhat in accord with the present trend.

In determining the size of families, only the number of children in the family were taken. This information was obtained from the questionnaire, asking for the number of brothers and sisters each student had. By seeking then the IQ's of children with different numbers of brothers and sisters combined, the medians were found for those of each sized family, which varied from 1 to 15. Table XXXI gives the rank order of the medians obtained from this information.

TABLE XXXI

IQ	No. in Family	F	IQ	No. in Family	F
110	14	5	103	9	10
108.5	1	39	102	8	24
106	3	105	99.5	10	14
106	15	4	98	6	84
104.9	2	96	92	13	2
104.2	5	101	89	12	2
104	7	31	84.5	11	6
103.1	4	112			

The column headed "F" denotes the number of children coming from the size of family indicated at the left, and for the larger families they are so few that comparisons will not be made.

Considering the order of the medians for those families on which 25 or more cases were obtained, the children are graduated in mentality almost as the size of their families vary. Disregarding the "stray" cases, the order of ranking by size of family is 1-3-2-5-7-4-6. The range in the IQ's is from 108.5, for the families with one child, to 98 for those with 6 children, a difference of 9.5 points. All medians for this group come under the "normal" classification, the children from the smaller families being in the higher average group and those from the larger, in, or approaching the lower average. The medians for the children from the families with 11 and 12 children are in the backward group, being 89 and 84.5 respectively, but only considering the 8 cases represented, which is off-balance by the medians for 9 cases for families

of 14 and 15, being 110 and 106 respectively.

In accepting the teachers' statements as to the number of students using tobacco and liquor, it is improbable that the true number has been ascertained, as the teachers are acquainted only with those whose actions or reputations rather notoriously acclaim the facts. There are many who indulge in these practices whom the teachers know nothing about, and in attempting to determine what effect, if any, these influences have on the minds of the students, only a few cases are to be had on each. The reports indicate that these practices are the most frequent in the upper grades, though the use of tobacco is indulged in even as low as the fourth grade.

The figures in the table below are not sufficient for any conclusions to be drawn. With the tobacco users, those in the high school grades appear to have superior minds and those in the lower grades, near normal, although they are considerably lower both by medians and ranges than the high school group. Nothing alarming is likewise learned from the figures on those who, to the teacher's or principal's knowledge, partake of liquor. Only 12 cases are found, and those are in the upper high school grades, with medians and ranges of IQ's well within the limits of normalcy or better. The ill effects of these two vices, if enough cases were obtainable, would probably be found more in the lower grades with the younger children.

TABLE XXXIII

IQ's of Students Using Tobacco and Liquor

Tobacco				Liquor			
Grade	F	IQ	Range	Grade	F	IQ	Range
12	9	103	96-118	12	7	108	96-118
11	8	100	87-121	11	3	98	93-99
10	7	112	97-129	9	2	103	91-115
9	5	116	91-128				
7	3	96	89-77				
6	3	93	76-97				
5	1	90	90-				
4	1	94	94-				

Next will be considered the IQ's of students who have repeated one or more school grades. These statements were obtained from the students themselves, and no provisions were made for determining the number of grades repeated, as would have been desirable in order to study the variation in intelligence of those repeating different numbers of grades. This repetition is usually caused by one of three things, particularly in the lower grades: First, moving from one part of the country to another, and working to help support the family; second, illness on the part of the student; and third, mental deficiencies. The last is the most frequent cause, although the other two may influence the results of the investigation somewhat. An alarming number have repeated one or more grades, to be exact, 37%. This is extraordinary even for the many rural school districts in the county. The distribution of the median IQ's of these people, follows.

TABLE XXXIII

Median IQ's of Students Repeating One or More Grades.

Grade	IQ Range	Repeaters: Median	F	IQ Range	Non-Repeaters: Median	F
12	73-116	105.2	12	92-132	108.5	27
11	86-124	104.5	17	93-131	106.3	38
10	86-119	104.5	23	94-142	112.5	31
9	87-128	104.5	19	83-133	111.7	38
8	72-121	99.5	40	63-134	103.2	48
7	66-117	98.3	35	78-136	107.4	44
6	61-126	88.4	40	68-131	104.1	49
5	63-103	87.9	26	74-126	102.3	55
4	62-115	83.5	23	83-119	103.1	70
Total Av.	61-128	97.3	235	63-142	106.4	400

Here is the most striking comparison that has been made. In every grade the median for the group having repeated one or more grades is decidedly lower than the one for those who have not. This difference is the greatest in grade 4, with the medians at 83.5 and 103.1, and least in grade 11, where only 1.8 points separates the med. IQ. The average median for all grades likewise shows a pronounced difference in the mental ability of those children repeating and not repeating school grades, being 97.3 and 106.4. In grades 4 and 5 over half the children who have repeated grades are mentally retarded, and the ranges of IQ's for all grades show

numbers of students below the lowest average mental rating of 90. A gradual decline in the medians is seen in each of the lower consecutive grades, diminishing from 105.2 in grade 12 to 83.5 in grade 4.

Many teachers and parents alike are ill-prepared to form an estimate of a child's intelligence because of the lack of standards by which to judge. Terman, (69 p. 24ff) contends that each pupil is judged by a teacher with reference to the average of her class, but she has no means of knowing whether the standard she sets is the same for all children in general. "Her standard may be too high, too low, vague, mechanical, or fragmentary." He mentions common errors experienced by those who are untrained in judging intelligence, as being: (1) Overestimating the ability of retarted children. (2) Underestimating the capacity of superior children. (3) Failure to distinguish genuine dullness from the mental condition arising from poor training and environment, and (4) Confusing the intelligence of the sprightly, talkative child, with that of a child who reacts slowly, is unemotional, and talks little.

Binet, the French psychologist, and author of the Binet-Simon scale, which is probably the most precise tool in existance for measuring intelligence, found that teachers commonly based their estimation of a pupils intelligence upon absurd criteria which had no relation at all to the question, and consequently misjudged the subject.

To again quote Terman, "It is the writer's experience that the teacher's estimate of a child's intelligence is more reliable than that of the average parent; more accurate even than the physician who has not had psychological training." With these statements in mind the correlation between the teacher's estimates of the children's intelligence and the results of the Otis group test, will now be discussed.

To obtain estimates of the children's abilities in terms that could be readily correlated with the results of the tests, the teachers were asked to rate the child as being very superior, superior, average, backward, or dull in mentality. Those ratings were then given classifications according to Terman's grouping, 90 to 110 average, 110 to 120 superior, etc., and the correlations were determined by comparing the rank order of the groups estimated by the teachers and those revealed by the tests.

. The following table shows the degree of correspondence between the teacher's estimates and the ratings determined by the Otis Intelligence Test.

TABLE XXXIV

Grade	Coeff. of Correlation	Grade	Coeff. of Correlation
12	.65±.07	7	.63±.05
11	.66±.06	6	.41±.06
10	.72±.04	5	.45±.06
9	.44±.08	4	.53±.05
8	.53±.05	Av.	.55±.05

Here is shown a variation by grades in the correlations, accounted for by the different types of children in each grade, and the differences in the ability of teachers of those grades to judge intelligence. The three upper grades in the high school show the most favorable correlation. In these grades are perhaps found the better trained teachers, and a more advanced, selected group for them to consider, both factors simplifying their decisions in the matter. With the more immature children in the elementary grades the classification given by the teachers is less accurate as a whole, indicating the children to be a more difficult group to judge, or lack of training and experience on the part of the teachers.

The ranges of the coefficients are impressing, being from .72 in grade 10 to .41 with the 6th grade children, pointing to the lack of agreement between the teachers, and also the group variations.

The average correlation for the 635 students in the 9 grades is .555. Whether this indicates a desirable degree of understanding on the part of the teachers of their pupil's ability, depends upon how the coefficient is interpreted. At its best it can point only to limited soundness of judgment, and again it is low enough to indicate the teachers are without a reasonable amount of ability in classifying the students according to their proper mental status. Many teachers base their estimation of a pupil's ability solely upon the success he realizes in one or more studies, and while this is some indication of the amount of his native equipment, it cannot and should not be used as a lone criterion.

The object of making a comparison between the IQ's and

the number of schools attended is to determine if the children coming from parents who are more or less migratory in character, differ from the children of parents more fixed in permanent residence. If the majority of the more restless parents are of inferior or superior stock, then a difference in the mentality of the children of those parents should be discernable.

The results of this comparison are shown by Table XXXV, below. Here, when considering the median IQ's based on five or more cases, there is some tendency for them to decrease as the number of schools attended increase, although the decrease is not constant or of any great amount. In the lower grades this is most noticeable, though in some cases contradictory. The average of the medians shows there is little difference between those groups attending more than one school. The medians for children having attended 6 schools average the lowest, and present the only evidence of subnormalities, which closer observation will eliminate, as only 4 children reported having attended this number of schools, and one of these with an IQ of 63 is responsible for the low average. Little is learned than from the data available for this comparison.

TABLE XXXV

Median IQ's of Children Attending Different Numbers of Schools

	1		2		3		4		5	
Grade	F	IQ	F	IQ	F	IQ	F	IQ	F	IQ
12	13	107	6	114.5	8	106	5	98	4	104.5
11	4	108	16	103	20	106.5	9	107	4	101
10	9	107	15	106	14	108.2	10	109.5	3	102
9	12	112	18	111.5	10	113.1	5	106	8	107.5
8	24	103	33	104	18	103.5	1	112	8	94.5
7	21	106	32	97.5	12	98	5	104.5	4	111
6	33	98.5	28	97	10	89.5	9	109.5	5	99.5
5	31	97	27	98.5	11	89.5	7	96	4	99.5
4	41	99.5	32	97	12	89.5	5	93	1	84
Total	188		207		115		56		41	
Av.		102		103.2		100.4		103.9		101.5

Continued on page 51.

Grade	6 F	6 IQ	7 F	7 IQ	8 F	8 IQ	9 F	9 IQ
12	1	109						
11			1	102			1	106
10	1	117			1	98	1	97
9			1	93	1	104		
8	4	109.5	1	102				
7	2	99.5	1	121	1	93		
6	1	61	1	93	1	63		
5								
4								
Total	9		5		4		2	
Av.		99.2		102.2		89.5		101.5

In determining the average scholarship ratings of the students concerned in this study, those in the lower grades were furnished by the teachers of those grades, and for the high school grades by the principals of the schools. Each was asked to give his estimate of the individual student on the basis of 100% , i. e., below 75 failure, 75–80 below average, 80–85 average, 85–90 above average, and above 90, excellent. Similarily, estimates were obtained on the application and deportment grades of the students.

The following table gives the correlations found to exist between IQ's and the scholarship, application, and deportment grades estimated by teachers and principals.

TABLE XXXVI

Grade	Scholarship	Application	Deportment
12	.57 # .09	.25 # .11	.14 # .12
11	.57 # .08	.36 # .09	.30 # .09
10	.43 # .07	.28 # .09	.16 # .09
9	.66 # .05	.37 # .07	.12 # .08
8	.54 # .06	.11 # .08	.19 # .08
7	.82 # .02	.38 # .07	.17 # .07
6	.83 # .02	.42 # .06	.36 # .06
5	.52 # .05	.51 # .05	.28 # .06
4	.48 # .06	.41 # .06	.23 # .07
Av.	.60 # .01	.34 # .02	.21 # .02

A favorable correlation exists in all grades between the IQ scholarship factors, the range being from .43 in grade

10, to .83 in grade. 6. The average for the elementary grades is considerably higher than for the high school. This may be accounted for by either less care being taken by the principals in making their estimates, they being less capable of making an accurate estimate by not coming in daily contact with the student as the grade teachers do, or the high school groups achieving less in proportion to their ability than the elementary pupil. A coefficient of .60 is to be had, as an average for all grades, which is higher than the coefficients obtained in the IQ standard test correlations, as shown by Table IV, page 9. Whether this condition is merely a coincidence or a matter of fact presents a problem for additional investigation.

A glance at column three of Table XXXVI, shows a group of very low coefficients representing the relation between the intelligence of pupils and the school authorities' rating of their industry in, and application to, their schhol work. If the ratings of these people are accurate, then a serious situation exists in the schools, calling for an extensive reorganization of curriculums or teaching methods. It points to a weakness distinctly within the school, where the requirements cannot be high enough to tax the student's effort to any appreciable degree. It is one of the foremost arguments for individualized instruction, or else a general raising of scholastic standards, or the improvement of teaching procedure. This condition is apparently the most acute in the upper grades, though the average for all grades shows a coefficient of only .34. The coefficient of .11 for grade 8 was calculated twice in an effort to discover an error in computing as being responsible for the lack of correlation, but the figure stood.

A still even greater discrepancy is observed between the IQ deportment ratings of the students. Again, if the latter ratings really represent true conditions, the cause is to be found in the school. The mentally average or superior student may find little difficulty in satisfying the scholastic demands of his teachers, after which he indulges in activities which affect his deportment grade, and which tend to influence the academic attitudes of not only himself but his neighbors. The least correlation between these two elements again seems to be in the upper grades. Whether the groups in those grades are more spontaneous in actions than the younger, less highly selected students in the lower grades, or whether a more reliable deportment rating is given

the younger children by the teachers more closely associated with them, it is difficult to determine. In either case, however, the variation between the two factors shows influences of a digressing nature, hardly commensurable with each other.

SUMMARY--Part I.

The variation in the number of boys and girls of different ages and belonging to differnet grades, did not permit definite comparisons between the two sexes, but the indications are that the girls were slightly superior to the boys in mentality, considering the median IQ of each sex by ages, grades, and as a group.

The coefficients of correlation between the IQ's and standard test achievements varied by grades and subjects, averaging around .41. While this coefficient is not as high as has been determined by other studies, it points to the positive relationship between the student's mental ability and his academic achievement.

Little evidence was found pointing to graduated degrees of mental acuteness possessed by students expressing different study preferences. The median IQ's of the group making the choices were so close to each other and the rank order arrangement of elementary and high school students so contradictory, , that no conclusions were permissable. Likewise little was learned of the mental status of students giving different reasons for their study choices.

Ambition on the part of the boys and girls for additional schooling was found to be accompanied by greater intelligence. The medians for those expressing hopes for high school and college careers were consistently higher, than for those not.

Taken as a group, those students choosing vocations higher on the occupational scale for their life work, were found to be correspondingly higher intellectually, the professional, executive, aritsan, and labor groups ranking in the order named. About 15% were undecided as to their futures, the majority of these being in the upper grades and the median IQ for the group being higher than for the four

other classes mentioned.

In the matter of avocational choices, students prefering music, those undecided, art, out-of-door activities, reading, athletics, mechanics, and home work, ranked mentally in the order of those preferences. Again, many were undecided as to what they most preferred to do with their leisure time, though above the average in mentality.

Little was learned of the intellectual differences of children based on the birthplaces of themselves, their mothers, and fathers. Such a wide range of birthplaces were represented that there were not enough cases to allow valid conclusions.

There was sufficient evidence available to permit the conclusion that children coming from homes with larger annual incomes were mentally superior to those not so fortunate. The fact that their parents themselves were superior to realise such incomes, explains this difference.

Based on the father's present occupation and the mother's pre-marriage activity, the intelligence of the group studied varied directly as the position of their father and mother raised and lowered on the occupational scale. Thus, children coming from professional parents were more liberally endowed with native ability than those from the laboring classes. Similarly, children enjoying better home conditions, economic and social advantages, were as a group superior to the other type. There was also some indication that children of the smaller families possessed the greater intelligence.

Nearly 10 points separated the median IQ of those children having repeated and not repeated one or more school grades. This points to the fact that the majority of failures are caused by inferior minds in the classroom, and calls for differentiated curriculums or other provisions to remedy the situation.

An average coefficient of correlation of .55 between the teacher's estimate of the group's intelligence and that revealed by the tests, showed a fair degree of competence on the part of the school workers to judge their charges.

A group of very low coefficients were found between mental test ratings and the application and deportment grades given by the school authorities, the significance of which was discussed in detail, and which brings the first part of the study to a close.

PART II

E D U C A T I O N A L

Wheatland County is located in the central section of Montana and lies mostly in a basin between two ranges of mountains, the Belts and the Snowies. Its chief industries are: agriculture, grazing, flour milling, and railroads. Harlowton fosters the last two industries, and is a division point of the Chicago, Milwaukee and St. Paul Railway. The agricultural and grazing activities are well distributed thruout the county, and are at present recovering from the general slump of 1919 and recent crop failures. The population is mostly native born (United States) white, and generally industrious.

The educational organization of the county consists of 33 school districts supervised by a county superintendent whose annual salary is $1800. One of these districts, Harlowton, having over 1000 population is a second class district, governed by a school board of 5 members. There are 3 village (3rd class) districts, namely, Hedgesville, Shawmut, and Judith Gap, maintaining high schools, with population of less than 1000, and presided over by a school board of 3 members. The remaining 29 school districts are rural, mostly one teacher organizations, and are regulated also by school boards consisting of 3 members. Only 19 of these rural districts are maintaining schools this year, due to sparse populations and the economic inability to finance them.

The county covers an area of approximately 1300 square miles, the school districts varying in size from 1.25 square miles for district #47 to nearly 55 square miles for district #16.

The personnel of the teaching force and the range of their salaries is as follows:

1.	City Superintendent	$2900
3	High school principals	1800-2300
1	Elementary School Principal	1600
7	City High School Teachers	1400-1600
7	Village High School Teachers	1100-1600
11	City Elementary School Teachers	1200-1400
10	Village Elementary School Teachers	1000-1250
24	Rural Elementary School Teachers	700- 900

Each school district in operation this year maintains one school with the exception of districts 16 and 26, which support two. Two schools for the former district which is nearly 55 miles square seem inadequate, but sparsely settled sections of the district explain the small number necessary, and many families move to town during the school term, while others are provided transportation to and from the schools maintained.

The tax levy for the support of the schools varies by districts from 0 to 20 mills, depending on the valuation of the district and their educational obligations.

The following table shows the rank order of Wheatland County compared with the 55 other counties of the state on educational statistics compiled from the Nineteenth Biennial Report of the State Superintendent of Public Instruction of Montana for the year ending June 30, 1926. (71 p. 1ff)

TABLE XXXVII.

Rank of Wheatland County Compared with the 55 Other Counties of the State.

Subject	Rank	Extent
No. of children between 6-21	41	1295
Boys	41	692
Girls	42	603
No. of children under 6	41	526
Boys	40	274
Girls	42	252
No. days taught - El.	11	176.6
No. days taught - Hi.	24	176.9
No. of original enrollments		
Boys - El.	41	448
Girls - El.	41	445
Boys - Hi.	30	118
Girls - Hi.	36	111
Total original enrollment	38	1122
Days attendance - El.	35	135,453.3
Days attendance - Hi.	34	34,690.5
Days absence - El.	47	6,510.8
Days absence - Hi.	31	1,828.0
Average daily attendance -El.	39	767
Average daily attendance -Hi.	33	196.1

Table XXXVII continued.

Subject	Rank	Extent
Average No. belonging - El.	37	803.8
Average No. belonging - Hi.	33	206.4
Percentage Attendance	20	95
Times tardy	37	3,037
No. Eighth grade graduates	33	78
No. El. teaching positions		
Men	35	3½
Women	47	44
No. Hi. teaching positions		
Men	20	8½
Women	28	10
Total teaching positions	14	66
No. different teachers employed		
Men - El.	40	3½
Women - El.	46	49
Men - Hi.	19	8½
Women - Hi.	25	10
Total different teachers employed	42	71
No. Normal College graduates	38	17
No. of College graduates	30	17
No. of teachers with 1 yr.		
training beyond high school	38	14
No. of teachers with 2 yr.		
training beyond high school		
but without advanced diploma	39	3
No. of textbooks owned	35	15,348
No. of volumes in libraries	19	13,550
Value of Libraries	18	$11,636
No. of Elementary schools	50	28
No. of High schools	25	4
Log school houses	39	2
Frame school houses	39	33
Stone school houses	15	2
Brick school houses	42	3
Total school houses	45	40
No. 1 room school houses	43	29
Value of school houses and sites	35	$245,590
Value of equipment	39	$ 37,575
School bonds outstanding	29	$147,070
Other forms of debt	23	$ 980.03
Am't tranferred to sinking fund	5	$ 26,219.57
Total am't in sinking fund	40	$ 9,686.60
No. visits by Co. Supt.	40	79

Table XXXVII continued.

Subject	Rank	Extent
Funds in insolvent banks	5	$ 6,755.45
Balance on hand July 1, 1925	24	$ 62,826.99
Apport. from state int.	40	$ 8,155.00
Apport. from inheritance tax	40	$ 467.57
Apport. from oil license tax	46	$ 511.00
Apport. from oil & gas Royal.	41	$ 486.33
Apport. from metal mines tax	42	$ 1,471.98
Apport. from normal tr. & voc. ed	12	$ 2,163.90
Apport. from Co. 6 mill levy	22	$ 42,517.13
Am't rec'd from special high school tax	27	$ 20,972.17
Sp. tax for General fund	38	$ 52,202.17
Sp. tax for free textbooks	34	$ 110.14
Rec'd from transfers from other districts	36	$ 394.91
Rec'd from other sources	47	$ 570.28
Whole am't available for use during the year	42	$ 206,124.81
Am'ts transferred to other dists.	38	$ 91.50
School Blds. & Business Offices	43	$ 1,505.99
Salary of Supt's & Principals	26	$ 9,582.60
Office expense (school)	25	$ 342.00
Cost of school census and compulsory attendance	46	$ 45.60
Salaries and expenses of supervising principals		
El.	13	$ 1,500.00
Hi.	11	$ 1,800.00
Annual salaries of teachers		
Men - El.	46	$ 1,724.00
Women - El.	40	$ 45,871.41
Men -Hi.	29	$ 7,350.00
Women - Hi.	27	$ 13,584.43
Textbooks - El.	43	$ 1,592.55
Textbooks - Hi.	23	$ 928.72
Stationary & Supplies - El.	10	$ 4,209.33
Stationary & Supplies - Hi.	9	$ 2,951.27
Wages for janitor, engrs, etc.-El.	30	$ 3,737.72
Wages for janitor, engrs.,etc.-Hi.	29	$ 2,405.36
Fuel, lights, water, supplies-El.	39	$ 4,473.65
Fuel, lights, water, supplies-Hi.	36	$ 1,935.71
Repairs, replacements - El.	29	$ 3,609.79
Repairs, replacements - Hi.	22	$ 1,232.57

Table XXXVII continued.

Subject	Rank	Extent
Libraries - El.	44	$ 451.03
Libraries - Hi.	30	134.07
Transportation of pupils	31	4,757.70
Other auxiliary agencies - El.	35	792.97
Other auxiliary agencies - Hi.	23	539.55
Pensions, rent, ins., etc. - El.	35	1,164.23
Pensions, rent, ins., etc. - Hi.	30	432.35
New grounds, bldgs.,etc. - El.	31	1,284.95
New grounds, bldgs., etc. - Hi.	24	458.75
New equipment - El.	51	251.17
New equipment - Hi.	50	44.71
Redemption of bonds		
Payment from current funds	19	237.80
Payment from sinking funds	23	14,900.00
Interest paid on debts	37	9,205.77
Net am't. spent 1925-26	39	145,037.81
Taxable wealth per child	4	4,851.00
Average valuation per teacher	12	95,194.00

The preceeding table shows to some degree the extent of effort Wheatland County is making to provide educational facilities for its children, in comparison with other counties of the state. A striking contrast is observed in the inequalities thruout the state by the rank order of Wheatland County among the different counties by the criteria employed. It is, however, unlikely that all of the criteria used are legitimate measures of ability and effort, as the educational problems of one county may differ from those of another. A small county could not be expected to spend as much for its schools as a larger one with a greater enrollment of students. A unit's resources and educational needs should determine the amount to be spent for schools. Concerning this, Rugg (60 p. 15) says, "Cities to be used for comparative purposes could best be selected on the basis of at least 4 criteria: (1) they should be of roughly the same population; (2) they should have somewhat the same geographical location in the county; (3) they should have approximately the same wealth per inhabitant or school census child; (4) they should have roughly the same types of population from a racial and occupational standpoint."

While Rugg's criteria are intended for comparisons between cities, it is obvious that the same should govern inter-county comparisons, if the results are to be considered with any

degree of seriousness. The counties of this state vary greatly in population which will violate his 2nd point, and while the geographical locations of the sites are confined to the state, the counties vary greatly in geographic structure, racial and occupational activities, so the comparisons and ranks of the county in question with other counties will warrant close scrutiny.

While ranking 4th in 1925-26, in valuation per census child (the valuation has since been cut over a million dollars) and 12th in average valuation per teacher, a radical difference is observed in the rankings of the other criteria, which at first thought indicates a gross lack of effort all out of proportion to the ability to provide educational opportunity. These figures, however, are misleading. The valuations are based upon prosperity ratings, and are in discord with the present and truer valuations. They existed prior to the time when crop and bank failures, and a general economic depression were experienced, and therefore cannot be used as an argument for ability to provide instruction.

A more fair comparison is to be had from the ranking of the county in total original enrollment of students. In this it ranks 38th among the counties of the state, and a study of the tables shows the other criteria, with a few exceptions, to correspond favorably with that rank.

Fewer children of school age are being reached by the schools than in other counties, but this is not necessarily the fault of the schools. Those in attendance show good records both for attendance and punctuality, even though the number of days of absences are high in the elementary grades, which is probably due to the many rural schools.

There is some indication that fewer teachers are employed in proportion to the number of students than in other parts of the state; that amount in salaries paid these teachers is also less; and the preparation of the teachers ranks in the lower 50% for the state. The latter two conditions are relieved of their serious aspect by considering the 24 rural elementary teachers.

The number of volumes in district libraries, and their value have a rank order of 19 and 18 in the state, while the value of school houses, sites, and equipment rank 35th and 39th respectively. Other assets, liabilities and expenditures,

have miscellanious rankings which show variations in many forms.

In illiteracy ranking, Wheatland County is the 12th lowest in the state, according to the statistics of 1920 (71, p. 46) which is a favorable indication considering its ranks of 38th in total original enrollment, and 41st in children of school age, pointing possibly to the confinement of this condition more in the adult group, beyond the reach of the common school.

As in every educational organization a wide over-lapping of ages in the different school grades is observed. The explanation of this is found in a number of conditions which surround the life of the child and community. These irregularities in the urban centers usually rest with the child himself if he has attended school regularly, but in the rural districts, short school terms and often no schools at all are responsible for the "over-ageness" in the majority of cases. The accelerated group, or those in higher grades than normal advancement would warrant, are fewer in number and range of ages than the retarded group.

Table XXXVIII, below, presents some discouraging facts. Children differing in age by 4 to 8 years are found in the same grades. The boys seem to differ slightly more than girls as a whole, though in grade 6 the girls vary in age from 9 to 16. A serious overlapping is observed in all grades for both girls and boys. It is, however, not as serious as is found over the state as a whole, where students of from 5 to 20 years of age are found in the first grade in the elementary school and from 14 to 20 years of age as seniors in the high school. (71, p. 40)

TABLE XXXVIII

Distribution by Grades and Ages.

Grade:	12		11		10		9		8		7		6		5		4	
Age	B:	G:	B:	G:	B:	G:	B:	G:	B:	G:	B:	G:	B:	G:	B:	G:	B:	G
20	0:	1:																
19	3:	0:	4:	0:				1:										
18	5:	5:	4:	2:	1:													
17	7:	9:	4:	7:	1:	3:	1:		1:									
16	5:	3:	6:	14:	10:	6:	3:	4:	1:	4:		1:		1:				
15	1:	0:	3:	6:	7:	12:	4:	9:	4:	10:	1:		1:	1:				
14			3:	1:	4:	10:	16:	8:	13:	14:	10:	3:		5:				
13			1:				7:	4:	6:	20:	9:	11:	6:	1:	2:	2:	1:	
12							1:		5:	7:	10:	17:	6:	10:	2:	2:	2:	2:
11									1:	1:	7:	10:	20:	22:	13:	9:	3:	
10													5:	8:	18:	16:	9:	8
9														1:	5:	11:	25:	30
8																1:	3:	11
Total:	21:	18:	25:	30:	25:	31:	31:	36:	32:	56:	37:	42:	50:	39:	40:	41:	43:	50

Seven children, in and below the eighth grade, have reached the age where the law no longer requires them to attend school, while in grade four (the lowest concerned in this study) the ages range from 8 to 13 years. The number of cases of retardation decreases with the upper grades, as children pass the compulsory school age and eleminate themselves from school.

The per cent of each class of students of normal, older, and younger ages, by grades and sexes, is shown by the table below, compared with the average for the state.

TABLE XXXIX

Per cent of Normal, Older than Normal, and Younger than Normal Children by Grades and Sexes.

Grade	Overage				Grade	Underage			
	Boys	State	Girls	State		Boys	State	Girls	State
12	38%	22%	23%	14%	12	23%	16%	16%	20%
11	48	24	33	19	11	28	14	23	17
10	52	26	29	20	10	17	14	32	17
9	25	27	53	21	9	25	13	15	17
8	59	29	50	22	8	18	13	32	17
7	54	29	40	20	7	18	15	27	19
6	26	28	46	20	6	10	12	26	18
5	42	27	31	19	5	12	12	29	17
4	34	23	20	16	4	7	12	6	17
Total	40	26	37	19	Total	16	13	22	18

Grade	Normal			
	Boys	State	Girls	State
12	33%	62%	50%	66%
11	24	62	20	64
10	30	60	38	66
9	51	60	30	62
8	18	58	35	61
7	27	56	46	61
6	40	60	56	62
5	45	61	39	64
4	58	65	60	67
Total	38	61	41	64

In making comparisons with the large number of cases obtainable in the state, it must be remembered that the majority of children represented by the state figures, are in town

and city schools, where educational opportunity and economic conditions make for less retardation. Such trends are evidenced by Cubberly, (18, p. 371) who found that in a large city school system, 70.4% of the children were making normal progress, 15.2% were retarded, and 14.4% were accelerated. This is more favorable than is reported for any one grade or for the state as a whole, and shows the advantages the urban children have over the rural ones in educational opportunity, but does not justify the high per cent of retarded cases in the less fortunate districts.

Over 50% of the boys in the county are above the normal age for their grades, in grades 7, 8, and 10, while the highest per cent for this state is only 29 in grades 7 and 8. Likewise over half the girls are over age in grades 8 and 9. A smaller per cent of girls are thus less handicapped than boys through the several grades both in the county and the state, meaning the girls are either better equipped to make a success of their schooling or the opportunities for them are greater. Usually in the rural sections the latter is true, because boys are required to be of more assistance on the farm during the school term.

Again, a greater per cent of girls are found to be young for their school grades than boys, except in grades 4, 9, and 12, where the per cent of under aged boys slightly exceeds that for the girls, but not enough to change the average rankings of the two, the girls being 6% more frequent than their opposites. Both underaged groups of the county show higher percentages of distribution through the different grades than the average for the state reveals, but the comparative number and range of cases no doubt affects both averages.

The contrast between the per cent of local boys and girls progressing normally with those throughout the state is marked as a consequence of the large per cent of the former in the retarded and accelerated classes. Nearly 20% more of the students over the state are making normal progress than are the local pupils. As a whole, a larger per cent of the girls are advancing on schedule than the boys, except in the first 3 high school classes where in proportion to their number the boys are more numerous. For all 9 grades over the entire county the girls appear to be more stable, as is the case throughout the state.

By comparing the per cents of the students making different rates of progress in school with the distribution of mental ability that might be possessed by those students, the following relationship is observed.

Making normal progress	40 %
Of normal mentality	55.5
Overaged for grades	38
Below normal mentality	17.7
Underaged for grades	19
Above normal mentality	26

This is of course assuming that those making normal progress would be normal mentally to the extent shown by Chart 3, p. 7, as well as those retarded and accelerated being below and above normalcy to a corresponding degree.

The results of the comparison show little evidence that the rates of progress of the students are governed entirely by their native ability. 15.5% more are normal mentally than are making normal progress for their ages, while 20.3% more are behind their chronological schedule by grades, than have an IQ below 90, and 7% more are rated as being mentally superior than are in grades normally for those beyond their years.

The map on page 65 shows the arrangement of the school districts in the county. Variations of the size of the districts is pronounced because of the scattered population. Many of the farms furnishing school population in the past are now deserted, making necessary the abandonment of school houses and the activities of which they once were the center. 9 districts of the 33 shown are without schools in operation. Two districts, 16 and 26, are supporting two schools each. The former district, having within its boundaries Harlowton, the county seat, and being a second class district, contributes the largest number of students in the county, while the 2 rural schools in district 26, are one teacher organizations instructing an enrollment of 15 in grades 4 to 8. The 3 village 3rd class districts, 20, 21, and 24 of which district 21 has the most students, represent the balance of the high school enrollment not taken in by Harlowton. Shawmut and Hedgesville(districts 20 and 24) both have two year high schools, their limited number of students not permitting a fully accredited high school system. The distribution of the

enrollment by sexes differs only to a limited extent by schools, districts, and as a whole; consisting of 302 boys and 333 girls, in grades 4 to 12. The enrollment is actually somewhat larger than these figures, as a few students over the county were absent, or not attending school when the survey was made.

The enrollment by the grades studied is as follows:

Grade	Boys	Girls
12	21	18
11	25	30
10	23	31
9	31	26
8	33	55
7	38	41
6	40	49
5	40	41
4	43	50

A gradual but certain decline in the enrollment is observed beginning with the 4th grade for both boys and girls until in the 12th grade only 48% as many boys, and 36% as many girls are attending school, as are in the 4th grade. For the state 76% fewer boys and 66% fewer girls are found in the 12th than in the 4th grade, while over the United States, according to the Biennial Report of the United States Commissioner of Education for 1920 (47, p. 93) only 13% as many students are found in their senior high school year as are enrolled in the 4th grade.

In regard to this wholesale elimination of pupils from the schools, the Federal Commission on National Aid for Vocational Education, in their 1916 report, says: "Whether from necessity or not, the economic fact is that the mass of children go to work as soon as the laws of the various states permit. It is not solely because children and their parents do not appreciate the value of an education that more than half the entire number who enter the elementary school do not remain to complete it. It is at least to some extent because neither they nor their parents are able to see in the schools of today an opportunity for education to fit the callings which they must pursue."

In the Minneapolis Survey for Vocational Eduation is the following summary of the reasons why particular pupils

left school.

Ill health	5.7%
Had to go to work	35.7
Child's desire to earn	8.2
Opportunity to keep vacation job	2.6
Trouble with the teacher	3.1
Lack of interest	29.5
Failure to pass	1.1
Belief further public school work would not be worth while	14.2

Having to go to work, lack of interest, and the belief that additional schooling would fail to benefit them, are the main reasons, and while concerning a group of city children, will probably also account for the majority of withdrawals from school by any unselected group of children.

A part of the problem of the school then, is to make provisions for the education of those who must spend part of their time in gaining self support or subsistance for their families, and to make the curriculums so attractive that lack of interest and appreciation will be lost in the new found pleasure the children will experience in attending schools where subjects are motivated by common practical interests, instead of being taught by traditional and obsolete methods applicable to the educational facilities of 100 years ago. The reorganization of the smaller schools to accomplish this purpose is one of the foremost demands upon modern education.

In discussing the educational significance of the choice of school subjects, it is recognized that the basis of these choices is interest, the real nature of which is yet not definitely determined. Many workers in their study of this vital element in school life, have recognized its various forms and causes and have attempted to summarize its effects in the laws of readiness and unreadiness, which Thorndike (70, p. 128) describes as follows: (1)"that when a conduction unit is ready to conduct, conduction by it is satisfying, nothing being done to alter its action; (2) that for a conduction unit ready to conduct not to conduct is annoying, and provokes whatever responses nature provides in connection with that particular annoying lack; (3) that when a conduction unit unready for conduction is forced to conduct, conduction by it is annoying."

Each of these bonds are set up in the individual by any number of experiences, sensations or situations, and his responses to these elements are determined by whether they furnish him with satisfaction or annoyance. The student's preference or antipathy for a school subject is governed by the appeal which the situations surrounding the subject have for him, whether he derives satisfaction or annoyance from studying the subject, in short, whether his conduction units are ready or unready. This in turn is determined by his past experiences, state of mind, and mental ability, all of which are influenced by the factors of his home and school environment, presenting innumerable causes for his choice. As these conditions change, so will his likes and dislikes be different and much experimentation has to be engaged in before he really finds himself. From this it follows that study choices or dislikes are not always static and may change from time to time, which complicates the problem of analyzing the choices more than ever.

Studies of pupil's choices of subjects in different sections of the county have revealed the fact that either their interests differ radically, or else the subjects are presented by different methods, as 1st choices in one locality will be almost opposite from what is expressed in another region. Sex differences are likewise strikingly prominent.

As an example of this condition, an investigation of some 3600 high school pupils in Indiana, Illinois, and Iowa, (72, p. 385) showed algebra attaining 2nd place in the choices of boys in the Horace Mann School, and 13th in the Iowa schools; history was the 2nd choice for girls in the former school, and 14th and 16th in Illinois and Iowa. These variations point not to the shortcomings or difficulties of the subjects themselves entirely but to the attitudes of the students toward them, and the way they are administered to the students.

Following, on the next page, is Table XXXIX showing the rank order of boy's and girl's choices of subjects in the high school grades of the county.

The variations can be attributed to the attitude the students have toward the various subjects, as about the same ratio in each subject was obtained from each school. The boy's choices are foremost in the scientific field, while the girls show more of a classical tendency. No girls chose ag-

riculture as it is plainly not in the line of feminine interests. History occupies a leading place in both boy's and girl's choices. More boys expressed no preference for studies than girls, and the commercial subjects are apparently less popular with the boys than with the girls. The companion course of shorthand which should accompany typewriting is given less consideration by both boys and girls, the reason being, the content of the subject having little relation to their other activities, and appealing only to those who have a specific need for it in their after school plans.

TABLE XXXIX

Choice of School Subjects.

Subject	Boys	Subject	Girls
Sciences (General)	26	English	26
Mathematics	20	Domestic Science	13
History	14	History	13
English	8	Foreign Language	13
Agriculture	7	Typewriting	11
None	7	Mathematics	10
Foreign	6	Science (General)	5
Social Science	4	Shorthand	4
Typewriting	3	Bookkeeping	4
Bookkeeping	2	None	2
Shorthand	1	Social Science	1
Commercial Law	1	Agriculture	0

Book, (7, p. 261) in his study of why high school pupils were dissatisfied with school subjects summarized failure for them to learn as : (1) the apparent unimportance of the matter to be learned; (2) the lack of motivation; (3) the lack of directed study; and (4) the lack of persistence in the face of difficulty. All, or any of these reasons may be interpreted as the cause for students not caring for school subjects, and of course concern the teacher as much as the student, particularly the middle two. Again, going back to the laws of readiness and unreadiness, a conduction unit may not be ready to act, depending on the stage of the academic progress reached, the student's temperament, and his environmental status.

The reasons given by students making these choices, were, for the subjects liked best: "It is interesting," "I like it," "Because I want to know about it", "It is easy". Most of these answers readily point to a real interest in the subject matter, while such reasons given for subjects liked least in school as:

"I don't like it", "Can't get it", "It doesn't interest me", and "It is hard", clearly indicate lack of interest, motivation, and application on the part of the student.

The summary of the subjects distasteful to the high school students, is shown as follows:

TABLE XL

High School Subjects Liked Least

Subject	Boys	Subject	Girls
English	32	Mathematics	22
None	22	Science	19
Foreign Language	14	English	17
Mathematics	13	None	13
Science	5	History	12
History	5	Foreign Language	9
Social Science	3	Home Economics	4
Bookkeeping	2	Social Science	3
Typewriting	1	Shorthand	2
Shorthand	1	Bookkeeping	1
Agriculture	0	Agriculture	1

Over 20% as many boys dislike the natural and physical sciences as indicate a preference for them, and 65 % as many show no interest in mathematics, as those who do. It is gratifying to observe that nearly three times as many boys express no dislikes, as those who indicate little interest in any study. English seems to be less interesting to more boys in the ratio of 4 to 1, and history , foreign languages, and the other subjects are correspondingly unpopular.

The girls show disinclinations for the scientific studies, and 65% as many mention English as their chief annoyer, as find pleasure in its study. 13 girls state that they dislike no subject, or are unable to decide which one they least prefer. The commercial subjects show, with the exception of typewriting, also annoying elements to a few.

The same laws and criteria for study choices will apply to elementary school students. If anything, they are more important, and worthy of consideration by teachers and administrators alike. The reasons given by these younger children for their choices distinctly show interest, lack of interest, and

difficulty with the subject as the basis of the expressions of like and dislike. In the elementary schools of the county, no elective studies are given, the state course of study, and the organization of the schools not permitting such deviations as a junior high school curriculum would require. The following table shows the tendency in the elementary pupils in this direction.

TABLE XLI

Study Liked Best				Study Liked Least			
Boys		Girls		Boys		Girls	
Arithmetic	49	History	53	Arithmetic	42	Arithmetic	40
History	37	Arithmetic	51	Spelling	26	Geography	38
Reading	33	Reading	48	History	22	History	36
Geography	22	Spelling	34	Reading	20	Agriculture	23
Spelling	15	Language	20	Language	19	Reading	25
Hygiene	7	Geography	10	Geography	16	Spelling	17
Civics	7	Hygiene	9	Civics	9	Writing	14
Language	4	Civics	6	Writing	9	Language	14
Agriculture	4	Art	5	Hygiene	7	Civics	8
Art	3	Agriculture	3	Music	7	Hygiene	7
None	2	Writing	2	None	3	None	5
Writing	2	Music	2	Agriculture	3	Music	4
Music	1	None	0	Art	2	Art	2

The absence of these elective studies and differentiated curriculums probably accounts for the similarity of the choices of boys and girls in the elementary grades. Contrary to the high school students, the rank order of the choices of the younger pupils is much the same. The girls out-numbering the boys, a difference in the frequency of the choices of the studies liked best is seen, but the interests of both boys and girls are almost evenly divided by rank. Arithmetic and history are the most popular subjects for both sexes as 1st choices, and music and writing are given the least consideration as favorites. Arithmetic and history prove also to be the most distasteful to those mentioning studies cared for least. Art is unpopular with only two boys and two girls, and is given this rank because it is emphasized in only one school.

A further analysis of this situation is shown by Table XLII, on page 72, giving the percentages of the different choices.

TABLE XLII

Subject	Best	Least	Subject	Best	Least
Arithmetic	23.2%	19.1%	Civics	3.1%	4.2%
History	20.1	10.3	Language	5.5	8.1
Reading	19.3	10.5	Agriculture	1.6	6.3
Geography	7.4	12.6	Art	1.8	.9
Spelling	11.4	10	None	.4	1.1
Hygiene	3.7	3.3	Writing	.9	5.3

The figures shown represent the per cent of the total number of elementary students considered, (430). The 1st five subjects, arithmetic, history, reading, geography, and spelling receive the major emphasis in the daily programs of the grades studied and concern the chief interest of a majority of the students. The fluctuations are accounted for by the different age groups, sexes, and, no doubt, methods of teaching.

Geography, civics, agriculture, and writing are less appreciated by a larger number of students than find pleasure in studying them, presenting evidence of the need for more attention to methods of teaching them. Each can be arranged for instruction in a manner exceedingly enticing to the interests of every normal child, and should be reorganized with that aim in view. The other subjects likewise call for additional effort on the part of the school officials to render them more vital and in accord with the interests and attitudes of the pupils.

The expectancy of students to realize hopes and plans for additional education is often shattered by circumstances over which they have little control, and is little evidence of the actual number who will complete different amounts of academic preparation. Natural elimination, disillusionment, and economic requirements take their toll on the number of students as each successive step is reached in their hopes and desires for education. Van Denburg, (31, p. 142) found the following condition to exist in his study of the high school students of New York City. Of the pupils indicating their intentions of remaining, not remaining, and being uncertain of remaining, in high school, the per cent of those remaining were:

TABLE XLIII

	1st yr.	2nd yr.	3rd yr.	4th yr.	Graduated
Yes	75%	61%	49%	33%	17%
No	28	13	9	7	3
Undecided	54	29	19	14	7

Comparing these figures with those given in the report of the United States Commissioner of Education for the years 1909-13, (these figures are not indicative of the present trend, as the enrollment in high schools and colleges since those years has increased amazingly in proportion to the population), shows the difference between expectancy for schooling and the amount actually realized.

It is obvious that the figures for those planning on additional education and the ones representing the actual attainment cannot be reconciled, even though they were obtained from different sources, and calls attention to inequalities in opportunity which have to be remedied if we are to realize our democratic ideals in education. This does not mean we must continue the academic preparation of the unfit, but must stress, even more than we are doing, the vocational education of those who by lack of intellect, or economic circumstances, are unable to continue their preparation for life.

TABLE XLIV

Per cent of the Educational Accomplishments of High School Students

	GRADES			
Groups	I	II	III	IV
Pupils graduated	34.2	51.1	73.4	96.7
(a) Going to higher institutions	17.5	26.1	37.7	49.5
(1) Going to college	12.0	17.9	25.7	33.9
(2) Going to other higher insts.	5.5	8.2	11.8	15.6
(b) Graduating but going no further	16.7	24.9	35.8	47.2
Pupils not graduating	65.8	48.9	26.6	3.3

The students in the local county are quite profuse in their plans to complete their high school work and later attend college. Many of them are to be disappointed, and perhaps in the lower grades many more, by their own decisions, will change their plans. Only 30 pupils indicate that they do not intend completing the high school course of study, and three more are undecided. This leaves 605 boys and girls contemplating a successful conclusion of four years of high school preparation. 406 students stated that they were going to go beyond high school into the higher institutions of learning, while 160 stated no college plans, and 62 were undecided as to what they would do. An analysis of these decisions by sexes and grades is shown by the following table, on page 74.

TABLE XLVI

Expectancy of Students to Attend High School and College

	High School				College					
	Boys		Girls		Boys			Girls		
Grade	Yes	No	Yes	No	Yes	No	Undecided	Yes	No	Undecided
12	19	0	20	0	13	3	3	16	1	3
11	25	0	30	0	13	4	8	17	10	3
10	24	0	30	0	15	3	6	20	7	3
9	31	0	26	0	24	2	5	16	7	3
8	33	0	55	0	16	11	6	40	6	9
7	31	6	41	1	19	13	5	33	6	2
6	34	6	47	2	17	18	5	37	12	0
5	33	5	41	2	19	19	1	29	14	0
4	34	6	51	2	20	20	0	42	9	0
Total	264	23	341	7	156	93	39	250	72	23
Per Cent	91	9	98	2	54	32	14	71	20	9

The students above the 7th grade designate their intention of not completing high school, and the number below that grade is also few. 91% of the boys and 98% of the girls have thots of at least getting that far in their academic careers. This means that during the next four years the high schools of the county would have to provide facilities and instruction for 296 children each year, not considering the additional numbers who will possible enroll later, and assuming of course that none drop out during that time. This figure is 44% more than are enrolled at present and will no doubt be reduced materially by the elimination factors mentioned previously. If such is the case then arrangements should be made to take care of those who cannot continue.

The resolutions or expressed intentions to attend college or other institutions of higher learning are less pronounced in each grade by both boys and girls, as would be expected. 14 boys and 9 girls are undecided, and nearly 100 more girls have the ambition to become college students than boys. Only a few of each sex in the high school indicate having no plans for college, while in the elementary grades the number increases, due to the larger enrollment and less selected groups. If such a proportion from every county of the state actually attended the Greater University of Montana institutions, it would sorely tax the resources of those institutions to care for the large

numbers, but such a condition is very unlikely, even from the local county. Concerning this, and for want of better comparison, the ratio of the number of white army recruits attending and graduating from college, will be mentioned. (36, p.323) Five out of the hundred who entered the 1st grade in the elementary attended college. Two were eliminated the first year, one each the second and third year, and one graduated from college. While this is a severe comparison, does not concern girls, and the figures are several years old, it shows the tendency of the elimination process, and will serve to illustrate the improbability of the number of local students ever reaching their goal in higher schools. The lower grade children, of course are not capable of signifying a reliable intention, but it is interesting to note the thoughts of these students in regard to their future in this respect.

Closely related to the individual's hopes and plans for higher education are the choices of vocations. In fact, educational counsel should be based primarily upon interests and aptitudes which influence these choices. Again interests become the key to the situation, the natures of which are governed by the environment and training given by the home, the school, and the social group with which the children are associated. In obtaining vocational preferences of pupils in the lower elementary grades, it is realized that many of these inclinations will undergo changes as the children mature and develop mentally, physically, and socially. But more and more attention is being given to the interest of younger students along this line, as evidenced by the opportunities of exploration in junior high school activities and other educational differentiations. The frequency and extent of changes in vocational interests have to be taken into consideration when plans are being made for vocational guidance, but these changes are not of the magnitude sometimes supposed. As an example, Thorndike (6, p. 392) found there to be a coefficient of correlation of .6 to .7 between stated preferences of interest from the same child, between the ages of 14 and 21, and a coefficient of .6 between the expressed interests of children in the last three years of the elementary school and the interests of the same children when reaching college. If such is the case, the vocational interests and plans of the younger members of society warrant recognition and such consideration as our educational institutions can give them.

Table XLVII, following on page 76 shows the rank the

vocational expectancies of the local children by grades and sexes in order of their choice.

TABLE XLVII

Choice of Vocations

Choice	Boys' Grades								
	12	11	10	9	8	7	6	5	4
Farming	0	1	2	6	9	15	21	16	20
Undecided	12	13	12	13	10	1	0	0	0
Engineering	0	0	3	0	5	5	0	4	5
Aviation	1	2	2	0	1	6	2	5	2
Mechanics	0	1	0	3	1	4	2	1	3
Electricity	3	0	1	2	2	0	4	1	2
Business	1	0	0	0	0	2	1	0	3
Medicine	1	2	0	2	0	1	0	0	0
Teaching	0	1	0	1	1	0	0	0	2
Salesman	0	0	0	2	0	0	1	2	0
Carpenter	0	0	0	0	1	0	2	1	1
Railroading	0	0	0	0	8	0	1	2	0
Pharmacy	0	2	1	0	0	0	1	0	0
Laborer	0	0	0	0	0	2	0	1	1
Forestry	0	0	0	0	0	1	3	0	0
Law	1	0	0	1	0	0	0	0	1
Journalism	1	1	0	0	0	0	0	0	0
Banking	0	1	1	0	0	0	0	1	0
Police	0	0	0	0	0	0	0	1	1
Actor	0	0	0	0	0	0	0	1	1
Plumber	0	0	0	0	0	0	0	1	1
Pugilist	0	0	0	0	0	0	0	0	1
Mail Carrier	0	0	0	0	0	0	0	1	0
Telegraph Operator	0	0	0	0	0	0	0	1	0
Dentistry	0	0	0	0	0	0	1	0	0
Sailor	0	0	0	0	0	0	1	0	0
Choice	Girls' Grades								
	12	11	10	9	8	7	6	5	4
Teaching	14	12	13	10	21	24	19	19	22
Undecided	1	6	9	5	13	5	2	3	3
Nursing	2	3	2	3	13	3	10	4	6
Stenography	2	6	2	6	4	4	8	3	1
Home	1	0	1	2	0	4	6	0	0
Business	0	1	1	0	1	0	0	5	1
Clerking	0	0	0	0	2	0	1	1	0
Bookkeeping	1	0	0	0	1	0	0	2	0
Farming	0	0	0	0	0	1	0	1	0
Medicine	1	0	0	0	0	0	0	0	0
Dancing	0	0	0	0	0	0	1	0	0
Art	0	0	0	0	0	0	0	1	0

Farming leads in the frequencies of the boy's preferences and it is evident that the number choosing this means of livelihood decrease as the educational preparation increases by grades. Only two girls mention the activity, and these are in the elementary grades.

The number not knowing or undecided about their futures consist of 21% of the boys and 13% of the girls. While this is not an alarming number, its serious aspect is that the majority of these students are in the high school grades. No boys and very few girls failed to express themselves unfavorably in the 3 lower grades, showing that even as early as 8 years of age, interests and attitudes are developed in both sexes pertaining to economic activity.

Engineering, aviation, mechanics, and electricity each occupy prominent places in the choices of the boys, and no doubt the recent achievements in aviation have stimulated interest in that field in the minds of young and old alike. Beyond electricity is a scattering of choices by boys, none of which are frequent enough to deserve comment, except for mentioning the wide range of interests.

44% of 154 of the girls are planning on teaching careers, calling for academic preparation beyond high school. The interests for this profession are evident in each grade from the 4th to the 12th, and in a pronounced contrast to the number of boys choosing it. In fact, the order of preferences for farming and teaching by boys and girls occupy opposite positions in the table.

Nursing, stenographic, and home activities, are the next most popular with the girls, and constitute with teaching, the major interests of their sex. Their plans are restricted to fewer vocations than the boys', and show also the effects of the limitations given them in their choices.

The opportunities for vocational guidance presented by this information are many, and can be used to an advantage if the inertia of the school workers can be overcome.

It would be impractical to add additional subjects to the already overtaxed elementary course of study as it is now organized, but by utilizing some of the subject matter already taught, even in the rural schools, to vocational guidance ends,

much good could be accomplished. The nature study course recently introduced in the elementary grades, and agriculture, as it is administered in the 8th grade, both contain an abundance of material which would be used to stimulate the agricultural interest of the boys in the lower grades. The Smith Hughes work given in Harlowton could be carried to some extent by an extension service, at a small cost, to the high schools of the county. This would supplement the efforts of workers in those schools in enlightening the students on the possibilities in the fields of engineering, mechanics, electricity, and domestic science.

The profession of nursing could be studied by girls along with their hygiene instruction, and stenography is already offered in two high schools of the county as an elective study, and could be put in the others, if needed. The social science courses will also allow activities in harmony with the guidance movement.

With the exception of teaching, the major interest of the girls, there seem to be ample facilities for directing vocational interests. By a careful study of the needs of each school, and the subsequent purchase of a few library books necessary for directed study in the various fields, together with the organization of clubs, and societies, and the resolution on the part of teachers to impart this much needed information incidentally as a part of the every day program in the school room, vocational guidance could be actually engaged in at a very small cost, little effort, and no highly organized machinery requiring statutory regulation.

The advisability of normal training in the county could be determined only after a more detailed study of the situation had been made. This would include eliminating those girls not fitted for teaching, mentally or physically, to prevent waste of effort and to allow the saving of time by both worker and student. In case it was found that either the remaining number interested in teaching, or economic conditions, would not permit the establishment of normal training in a central point, activities such as were mentioned for the other interests could be undertaken to the benefit of many girls who are at present, no doubt, in the dark as to their qualifications for, or the requirements of, the teaching profession even though limited to rural school work.

The five educational tests employed in the survey consisted of the following:

Monroe's Standardized Reading Test--Form I.
The Gettysburg Edition of the Ayres Writing Scale.
The Otis Arithmetic Reasoning Test--Form A.
Monroe's Timed Sentence Spelling Tests.
The Trabue Language Scale--Forms B-C and K-L.

The reading test comes in 3 forms of 3 tests each. Test 1 is adapted to the needs of grades 3, 4, and 5. Test 2, for grades 6, 7, and 8, and Test 3 for grades 9 to 12 inclusive. This test measures both speed and comprehension of reading, and has tentative norms for January and June scores for each grade together with the tabulation chart and key. It was found to be satisfactory for the needs of the survey.

The writing scale consists of the opening lines of Lincoln's Gettysburg address, which were put on the blackboard the day before the tests were given in order that the children might become more familiar with the wording of the stanzas, so as to take less time from their actual writing period of 5 minutes. The quality of writing is determined by samples rated from 20 to 90 in intervals of 10. It allows the papers to be easily scored by comparing them with the specimens given in the scale, and can be used in both the high school and the lower grades in the same manner.

The Otis Arithmetic Test is taken from Test 5 of the Otis Group Intelligence Scale, Advanced Examination--Form B, and also can be used consecutively in grades 4 to 12 inclusive. The full 6 minute period was taken to administer the examination. On the directions sheet accompanying the tests are the key, January norms, and a table of the arithmetic ages the different scores represent, as well as a class record. As its name implies, it is a reasoning test and somewhat advanced for the lower grades. It is simple to administer and score, and low in cost.

In an attempt to secure a more reliable measure of the student's spelling ability, the timed sentence spelling test was employed. Investigations have shown that pupils will misspell words in their written work, which they would otherwise spell correctly from work dictation in class. Monroe attributes this to the minimum attention given words in written work being done at a normal writing rate. The tests require

some degree of skill to administer, in providing for the time intervals, and a clear steady enunciation of words to avoid confusion on the part of the student. The tests come in 3 forms; test 1 for grades 3 and 4, test 2 for grades 5 and 6, and test 3 for grades 7, 8, and high school. Only one test is required for each group examined, and directions with grade nouns are included in each test. The correcting of these tests is the only undesirable feature they have. This required much time and accuracy of reading the different styles of children's writing.

Forms B and C of the Trabue Language Scale were used in the elementary grades, and K and L for the high school. The scales are primarily vocabulary tests requiring some knowledge of grammar and sentence structure. No knowledge of punctuation is required of the student, his being asked only to supply missing works in groups of sentences. Semester standards for each grade are given in the book of directions which has to be purchased separately from the tests. The latter are somewhat difficult to correct and score due to the variety of words which can be supplied in the blanks for that purpose, and the different values assigned these words by the author of the scale. They are however, low in cost, simple to administer, and the only tests which could meet the requirements of the survey.

Following, on page 81, are the results of the educational tests just described, in tabular form, by sexes, with the ranges, central tendencies, and other information by grades.

The Monroe reading tests attempt to measure the ability of the student to read single paragraphs for the purpose of answering questions pertaining to those paragraphs, and it is obvious that his general reading comprehension ability is determined from the results of the test to only a limited extent. Nor can it be said that former ability is measured precisely as no provision is made for the progress he has made with a paragraph he is forced to leave uncompleted when time is called, in either his speed or comprehension score. He is not reading continually, and fails often to understand the directions which the artificial reading situations describe.

The comprehension scores then have to be interpreted with care, as well as the speed attainments which are subject

to the same restrictions, and which are shown in the following table.

TABLE XLVIII

Reading Comprehension Scores.

Grade		Q1	Med.	Q3	Norm	Range
12	Boys	25	43	51	30	17-62
12	Girls	24	35	44	30	12-81
11	Boys	23	35	45	27	12-62
11	Girls	29	41	52	27	28-81
10	Boys	28	39	51	25	22-81
10	Girls	32	42	52	25	22-81
9	Boys	29	38	45	23	22-81
9	Girls	24	33	38	23	12-81
8	Boys	14	27	32	26	5-45
8	Girls	19	29	35	26	12-45
7	Boys	14	21	25	23	9-45
7	Girls	19	26	33	23	5-45
6	Boys	14	20	26	19	5-45
6	Girls	13	22	32	19	5-45
5	Boys	6	8	13	18	4-29
5	Girls	7	13	19	18	4-29
4	Boys	3	7	11	13	4-29
4	Girls	3	8	18	13	4-29

In reading comprehension the girls are superior to the boys in most every grade in the two quartile and median scores, except in grades 9 and 12, where the boys have a slight advantage. In spite of the fact that the tests were given before the month of January (the month the norms were determined) the medians for both boys and girls are well above the mark set for their achievement at that time. This is true except for the 7th grade boys, and the 4th and 5th grade students. In every grade, the lower quartile scores are below standard, but in each grade the upper quartile groups are in many cases more than 100% over the given norm. The 4th and 5th grade children are not far below standard, when considering their median scores being just a few points under the norm, which two or three months of additional schooling would no doubt remedy. There is a tendency for the median and 3rd quartile groups to exceed the standard more in the upper grades. This is accounted for by their being a more highly trained and selected group than their younger schoolmates, and their studies requiring and preparing them for greater reten-

tion of what they read than is the case in the lower grades.

The maximum score was attained by both sexes in all grades, except 11th and 12th where the boys fell somewhat short of the goal, showing the presence of superior students in every group. The ranges are fairly uniform, going from very low scores to the highest possible, indicating inferior, as well as excellent, retention.

TABLE XLIX

Reading Rate Scores

Grade		Q1	Med.	Q3	Norm. (Jan.)	Range
12	Boys	83	131	142	96	77-151
12	Girls	93	109	119	96	68-151
11	Boys	81	113	142	90	77-151
11	Girls	103	132	141	90	86-151
10	Boys	92	122	139	85	77-151
10	Girls	93	123	140	85	55-151
9	Boys	112	130	139	83	55-151
9	Girls	82	96	115	83	68-151
8	Boys	87	126	134	106	52-141
8	Girls	100	132	136	106	61-141
7	Boys	82	97	130	100	46-146
7	Girls	92	103	132	100	63-146
6	Boys	70	91	129	90	52-146
6	Girls	65	102	130	90	46-146
5	Boys	43	57	83	87	33-141
5	Girls	55	73	88	87	31-141
4	Boys	48	65	84	70	26-141
4	Girls	44	64	84	70	22-141

A fluctuation exists in the rate of reading of both boys and girls in the high school grades, but, after the eighth grade is reached, a gradual decline in the rate score for both sexes is observed in the different grades. The quartile for the girls show higher scores than those for the boys except in grades 4, 9, and 12. The lower quartile maximum for girls is higher than the norm in grades 10 and 11, and the median scores of both are well above standard until the 4th and 5th grades are reached, where they fall below the norm for those grades.

Starch, (71, p. 9) gives the opinion that the rate of

reading in words per minute for the different grades should be as follows:

II	III	IV	V	VI	VII	VIII
108	126	144	168	192	216	240

Other writers differ in their opinion, and it is evident that Starch's rates far exceed the norms for the Monroe test, and the upper quartile scores of all the pupils in the grades he considers. It is difficult, because of the factors mentioned in connection with the discussion of comprehension, to fix a standard rate of silent reading for grades or ages, and the later investigators take this fact into consideration when venturing opinions on the subject.

Whether the girls are superior to the boys in comprehension because they exceed them in reading rate, or whether their training, environment, or attitudes are more favorable to the subject of reading, it is difficult to determine, but it is evident that a degree of superiority exists, and is marked enough to justify attention.

The ranges of the reading rates, as with the comprehension scores, show maximum and minimum attainments for both groups of students, the minimum being less and less as the lower grades are considered, but the maximum present in each grade. It follows that the upper quartile scores could have easily been higher for both comprehension and rate if the test had included more material, as evidently many finished their work before the time limit expired.

Koos, (41, p. 189) concludes in his study of over 2000 writing specimens obtained from social and business correspondence, together with the opinions of 826 adults on what they consider adequate legibility in handwriting, that the quality 60 on the Ayres scale will satisfy the social requirements of hand written communications. He also expresses the opinion that there is even justification at setting the standard at 50, but advises a slightly higher standard, hardly to exceed 70, for the commercial and teaching fields.

Unless the maintenance of a definite standard of writing is insisted on in the higher grades, it hardly seems worth while to insist on such formal requirements in the elementary schools, as to the writer's knowledge, many stu-

dents who received their final Palmer Certificates of Writing Proficiency in the eighth grade, have almost entirely discarded their style, quality and neatness by the time they reach their second year in high school.

This statement is borne out somewhat by an examination of the writing scores shown in the following table, where little improvement is seen in grades above the 8th by either boys or girls.

TABLE L

Writing Scores

Grade		Q1	Med.	Q3	Range
12	Boys	40	50	60	20-80
12	Girls	45	52	61	20-90
11	Boys	34	40	48	20-80
11	Girls	41	51	66	20-90
10	Boys	32	38	59	20-70
10	Girls	42	54	66	40-90
9	Boys	32	38	56	30-80
9	Girls	40	48	63	20-80
8	Boys	32	40	50	20-70
8	Girls	42	53	65	30-90
7	Boys	30	35	42	20-60
7	Girls	32	43	50	20-70
6	Boys	23	33	38	20-50
6	Girls	30	38	50	20-70
5	Boys	20	27	35	20-50
5	Girls	27	34	40	20-70
4	Boys	20	22	28	20-50
4	Girls	20	27	25	20-60

In the upper and lower quartile, and median scores, the girls are superior to the boys in each grade. An improvement in quality is observed in each successive grade for both sexes, but only in the upper quartile in the 12th grade do both boys and girls attain a standard comparing to quality 60 or above as advocated by Koos, and commonly considered adequate by teachers. The quality 20 is possessed by students in all grades with the exception of 3. The girls reach 90 in grades 9, 11, and 12, while the highest for the boys is 80, also in those grades. Many specimens in the lower grades

would have been graded below evaluations on the scales, as the samples in question resembled nothing but a scrawl, hardly legible even to the trained eye. This would have also lowered the 1st quartile scores for those grades.

Adequate grade norms for the Gettysburg Scale do not accompany the scale itself, but the following were obtained from Monroe De Voss and Kelly, Educational Tests and Measurements, p. 185.

Grade	2	3	4	5	6	7	8
Quality	38	42	46	50	54	58	62

Lewis, (ibid, p. 188) found the median scores of 1760 Iowas Normal Training high school students to be 59.1, with a range from 34 to 89.

Comparing the median scores of the Wheatland County children with the norms, shows the latter to be somewhat below standard in all grades, providing the time of the year the scores of both groups were determined, is not considered. It is improbable however that by even making allowances for improvement to be made during the balance of the school year the scores of the local pupils would not be raised enough to compare favorably with the standards cited.

In using the Otis Arithmetic Reasoning Test, it is recognized that special capacities in pupils, such as the four fundamental operations, are not tested separately, but rather as a group. Stone (40, p. 20) found that these arithmetic abilities and special capacities were made up of a number of factors each independent of the others, with the result that ability to add integers does not necessarily indicate proficiency in the other operations. A reasoning test of the type used, measures the ability of the student to analyze a given situation and then by performing a series of operations, seek a solution to the problem. In doing this, his skill in no one field is determined, nor is the rate of work evaluated, and the results have to be considered in terms of general arithmetical achievement.

The disadvantages of the test are that no norms for the high school grades are to be had, and the scope of the arithmetic work is confined to 20 general problems, not permitting diagnostic treatment. The following table shows

the results of this test.

TABLE LI

Arithmetic Scores

Grade		Q1	Med.	Q3	Norm.	Range
12	Boys	13	14	16		4-20
12	Girls	9	13	13		4-19
11	Boys	13	14	18		6-20
11	Girls	11	13	14		8-19
10	Boys	12	13	15		7-20
10	Girls	8	11	13		4-20
9	Boys	13	14	16		12-19
9	Girls	9	12	14		4-17
8	Boys	9	11	12	12	6-17
8	Girls	9	11	13	12	4-15
7	Boys	8	10	12	10	6-15
7	Girls	7	8	10	10	6-15
6	Boys	5	7	9	8	4-15
6	Girls	4	6	7	8	2-11
5	Boys	3	5	7	6	2-13
5	Girls	3	4	6	6	2-15
4	Boys	1	2	4	4	1- 9
4	Girls	1	2	4	4	1- 9

The effect of training and experience is observed by the upward graduation of the scores as each grade level is reached. The medians of the high school groups are above the standard set for the 8th grade except for the 10th grade girls. The norms given for below the 8th grade were determined from June scores and a more equitable comparison is to be had by comparing the quartile scores for each grade with the norm for the grade below it, as the pupils are nearer the achievement of that grade of last June. The students in the lower quartiles seem to compare more favorably withthe norm by this method, and the medians and upper quartile scores rank well above the standard. Contrary to the results of the reading and writing tests, the boys in each grade division rank higher than the girls in both quartile and median scores, and the ranges of the scores of the former indicate less differences in arithmetical ability in their group. The ranges again show individual differences among the two sexes in each grade. Some 12th grade students have as little arithmetical reasoning ability as the 5th grade pupils. This is concerning when it

is realized they have had at least 3 years more training in arithmetic, and not less than 1 year of high school mathematics, with which to improve their reasoning power. Again, some 5th grade girls made higher scores than juniors in high school. There is a distinct improvement in the 9th grade achievement over the 8th grade, which may be due to the training the high school freshmen have received in algebra. Interests such as were shown by the choice of studies and vocations by boys explain their superiority as a group, over their opposite sex in this subject.

The problem of measurement in the fields of language and grammar is much the same as is experienced in evaluating achievement in reading and arithmetic, in that specific habits influence to a large extent the scores made by pupils. Unfavorable responses are caused either by lack of training and preparation, or lack of interest and desire for correct usages. The Trabue Language Scale, while not consisting of specific grammar exercises, requires some knowledge of the fundamentals of grammar in supplying the proper words for the sentence completions. These sentences are scientifically arranged in order of their difficulty and test the student's knowledge of words and their applications. It has been criticized by some as being more of an intelligence test than a language scale, and no doubt does resemble the former in some respects, but at the same time fulfills, partially at least, the purpose for which it was originally intended.. The attainments of the local pupils in these language exercises is shown below.

TABLE LII

Language Scores

Grade		Q1	Med.	Q3	Norm.	Range
12	Boys	9	12	14	21.5	5-24
12	Girls	10	13	15	21.5	5-29
11	Boys	9	12	15	19.9	5-24
11	Girls	11	14	19	19.9	10-24
10	Boys	6	9	13	17.8	5-24
10	Girls	10	13	15	17.8	10-29
9	Boys	8	11	13	15	5-19
9	Girls	9	12	15	15	5-24
8	Boys	20	23	27	28.2	15-39
8	Girls	21	25	28	28.2	10-39

Grade		Q1	Med.	Q3	Norm	Range
7	Boys	17	20	24	26.2	5-34
7	Girls	20	23	27	26.2	20-39
6	Boys	17	20	24	24.4	10-34
6	Girls	16	20	23	24.4	5-34
5	Boys	11	16	19	21.1	10-34
5	Girls	10	15	19	21.1	10-34
4	Boys	9	13	17	19.2	5-29
4	Girls	11	14	17	19.2	5-29

The norms, while established from semester scores, are considerably higher than the medians of the local pupils. In no grades do the median or upper quartile scores correspond favorably with the standard. This is the most discouraging comparison found in the scholastic achievements of the Montana group, and while the greatest differences between the scores and the norms are in the high school grades, where less formal training in language is given, there is a significant shortcoming in the elementary grades. Girls are more capable in this study than boys, in each grade, when considering the quartile and median scores. The different forms of the test used in the high school and elementary grades will not allow comparison between the score elements of the two, but the wide variations between language ability of individuals in the two departments is evident. 9th grade girls made as high scores as the senior boys, and several 4th grade girls apparently possess more language ability than boys in the 8th grade. A less graduated improvement is observed for girls and boys in high school than in the other grades, where the scores indicate higher achievement as additional training is given. That interests in this field are more acute for girls than for boys, may explain the difference in the accomplishments of the two, but does not offer a clue for the explanation of the low scores, as the subject does not appear to be unpopular in the choice of studies. Training and environment can be mentioned as the chief causes for the absence of ability in this capacity.

The words used in the Monroe Timed Sentence spelling tests were taken from appropriate columns of the Ayres Spelling Scale, and the rate of dictation of the sentences to the students is based on the writing rate of 6000 Kansas pupils. Fifty test words are used in each test, which allows a fairly accurate measure of the spelling ability of individual students,

inasmuch as the words themselves are concerned, but the pupil's score on the test does not express entirely his spelling ability, as his rate of writing and understanding of dictation may not allow him to write all of the test words. This condition is evident from the omissions occurring in the sentences written by children in this study, which affected their score to a considerable extent. Also, the medians for the Monroe test are below those of the Ayres Scale, as only the words to be spelled engaged the pupil's attention, when the material for the establishment of norms for the latter was being collected. It is then apparent that the timed sentence spelling test measures a different type of spelling ability than the test whose purpose is to measure ability to spell with attention focused solely upon the test word itself. Training in spelling should be given with the intention of teaching the correct spelling of words with a minimum amount of attention, to allow more thought to be given to the idea being expressed. With this in mind it becomes apparent that the timed sentence test determines more accurately the habits of spelling in children, which, other things being equal, is the most desirable measure of that ability.

Table LIII gives the degrees of skill possessed by the group studied, with the timed sentence test.

TABLE LIII

Spelling Scores

Grade		Q1	Med.	Q3	Norm.	Range
12	Boys	38	42	44	43	4-50
12	Girls	41	44	46	48	31-50
11	Boys	38	41	45	47	31-50
11	Girls	40	43	45	47	31-50
10	Boys	35	40	45	45	27-50
10	Girls	41	43	45	45	35-50
9	Boys	38	41	43	43	26-50
9	Girls	38	42	44	43	31-50
8	Boys	27	35	39	42	3-48
8	Girls	27	36	42	42	5-50
7	Boys	15	24	31	35	5-49
7	Girls	20	27	35	35	10-50
6	Boys	13	22	29	40	1-44
6	Girls	17	24	35	40	1-49
5	Boys	1	5	20	33	2-44
5	Girls	2	10	19	33	2-43
4	Boys	3	14	33	28	1-49
4	Girls	13	23	33	28	3-50

The class medians in all grades are below standard and only in two high school grades do the upper quartile scores equal or exceed the norm for those grades. However, as the norms for the test are taken from the results of April and May scores, the situation is relieved somewhat of the inference made by the achievement of the local group. Nevertheless, there is ample room for improvement as the additional training received between the time the tests were administered and the months of April and May, would not improve the scores to the necessary extent for bringing them up to standard. This follows from comparing the scores of each grade with the norm for the previous grade. Again, the girls exceed the boys in quartile and median scores in most every grade, thereby proving themselves superior to the boys in standard test achievement in all subjects except arithmetic. The ranges show, as was found in the other subjects, wide differences in individual accomplishment.

Such words as too, believe, relief, absence, expense, their, there due, whose, etc., were conspicuous for the difficulty they gave to students, and many words involving "ie", "ei", and other letter combinations were likewise most frequently misspelled.

This concludes the discussion of the test results and an effort will not be made to explain some of the causes of the wide ranges of abilities and achievements revealed by the results of the tests. In doing this, a few of the social, home, and school conditions surrounding the lives of the pupils will be considered to determine whether the same influences, affect the educat'onal scores. as they evidently did the results of the intelligence measurements. Comparisons will be made between the scores achieved by pupils coming from owned and rented homes, those who have repeated school grades, and those attending rural, village, and town schools. These three factors will allow only restricted conclusions to be drawn concerning the elements they represent, but will serve for the purpose desired.

Table LIV, on the following page, gives this comparison in tabular form.

TABLE LIV

Median Test Achievements of Children Coming from Owned and Rented Homes.

Grade		Read:	Norm:	Writ:	Arith:	Norm:	Lang:	Norm:	Spell:	Norm
12	Owned	44.5	30	55.2	15.5		17	21.5	47.1	48
12	Rented	37.5	30	59.5	15		17.5	21.5	49	48
11	Owned	43.5	27.2	55.1	15		18.3	19.9	48.4	47
11	Rented	42.8	27.2	35.2	16		17.1	19.9	45.4	47
10	Owned	45.7	25.4	50.9	14.6		17.5	17.8	47.2	45
10	Rented	43.7	25.4	63.8	13		15.8	17.8	46.5	45
9	Owned	45.3	23	50.9	15		16.4	15	46.1	43
9	Rented	36.1	23	52.8	14.8		16.5	15	46.4	43
8	Owned	32.8	26	58.3	11.5	12	29	28.2	41.1	42
8	Rented	33.4	26	60.4	11.9	12	29.1	28.2	39	42
7	Owned	24.5	22.8	48.2	11.6	10	28.1	26.2	32.5	35
7	Rented	27	22.8	48.7	9	10	25.9	26.2	29.5	35
6	Owned	25	18.5	45.4	8.1	8	23.9	24.4	29	40
6	Rented	23.5	18.5	43.9	7.3	8	24.4	24.4	29	40
5	Owned	17.8	17.8	38	6.6	6	20.8	21.1	12	33
5	Rented	14.5	17.8	42.5	6.9	6	22.1	21.1	14.3	33
4	Owned	11.6	12.7	35.8	4.2	4	18.9	19.2	26.6	28
4	Rented	12.6	12.7	33	4.3	4	18.5	19.2	17.8	28

High school students coming from rented homes have a lower reading score median than the others. This is also true of the pupils in grades 5 and 6, but the 4th, 7th, and 8th grade medians for those living in rented homes slightly excel those who do not. In only one grade (4) do the medians of either class fall below standard. Comparing this condition with the same medians for the two sexes, it is obvious that a wide range of achievement occurs for both groups.

The writing scores take the opposite trend. In only one grade, do the children of the more fortunately situated parents, equal or excel the children from the rented homes. As no satisfactory norms are to be had for the high school grades, it is impossible to determine how the latter type compare with a grade standard, but few of each class evidently have a skill of quality 60 on the Gettysburg Edition of the Ayres Scale, as advocated by Koos. It may be mentioned that the writing scores would be influenced less by the home environment than the scores in those studies involving more mental application, and, if this is true, the comparison found is perhaps to be expected.

There is some evidence that the arithmetic medians by grades are higher for pupils from parent-owned homes, in grades 6, 7, 9, 10, and 12, but in the four remaining grades the opposite is true though not to the extent of difference. The medians for both groups are also below the norm in several grades, each group sharing alike in this respect. As a whole, however, the more favorable achievement in arithmetic is had by those children coming from homes which are the property of their parents.

With the language scores a similar situation is found, but with more pronounced variations. Thus in the cases where the medians are below normal, the children from the rented homes rank the lowest, which offsets somewhat the advantage they appear to have in grades where their medians are higher to a small extent than those of their fellows living in parent owned homes. The superiority of the latter over the former, while little, is recognizedas being distinct for the group.

A continuation of the preceeding tendencies is observed in the median scores for the spelling tests. Most of the grade medians favor pupils who are the offspring of parents in more fortunate economic circumstances, and the extent which the medians of the students of the other class of parents are below the norm for their grade further accentuates their lower standing.

In studying the test achievements of pupils who have repeated one or more school grades, the cause for such repetitions again has to be considered. Many factors concerning the problem present themselves for discussion, but passing over the minor ones previously mentioned, it is evident that the majority of grade repetitions are the result of the mental and physical disorders of the pupil. The degree to which these influences affect his scholastic achievement varies usually in proportion to the intensity of the affliction, and will influence the comparison to be made between the test scores of students repeating and not repeating school grades. Other elements such as lack of educational opportunity, and methods of teaching will also help explain the differences, but the mental status of both types of pupils shows that most of the waste of time and effort is due to inferior mentality. Such being the case, it is to be expected that children not requiring an extra period of time in which to complete a given

amount of work, will enjoy more progress in school, and rank correspondingly higher in their test results. If, however, the repetition is caused by a temporary mental or physical condition or other influences, such as lack of opportunity to advance steadily, or poor teaching methods, there exists the possibility of their achievements being on par with, or above their more fortunate school mates. Again, they may have made suitable progress in the various subjects by additional study to allow them to be classed as equal or superior to the pupils who are covering the material for the first time, which may be the cause of some of the irregularities shown in Table LV, below.

TABLE LV

Median Test Achievement of Children Having Repeated School Grades, and Those Not.

Grade	Read:	Norm:	Writ:	Arith:	Norm:	Lang:	Norm:	Spell:	Norm
12: Repeat:	31.5:	30 :	66.1:	15 :	:	18 :	21.5:	46.6:	43:
12: Not :	45.6:	30 :	55.5:	15.4:	:	16.3:	21.5:	48.1:	48:
11: Repeat:	37 :	27.2:	54.2:	14.8:	:	18.6:	19.9:	45.5:	47:
11: Not :	42.9:	27.2:	56.7:	15.8:	:	17.4:	19.9:	47.7:	47:
10: Repeat:	44.5:	25.4:	57 :	15.1:	:	15.1:	17.8:	46.1:	45:
10: Not :	47.5:	25.4:	56.7:	13 :	:	17.8:	17.8:	47.8:	45:
9: Repeat:	37.5:	23 :	54.5:	14.3:	:	16.3:	15 :	45.7:	43:
9: Not :	40.5:	23 :	53.2:	15.9:	:	16.5:	15 :	46.6:	43:
8: Repeat:	29.5:	26 :	55.1:	11 :	12 :	27.6:	28.2:	37.5:	42:
8: Not :	34.5:	26 :	58.8:	11.9:	12 :	30.1:	28.2:	40.8:	42:
7: Repeat:	25.7:	22.8:	57.7:	10.3:	10 :	25.2:	26.2:	34.1:	35:
7: Not :	27.8:	22.8:	48.8:	11.2:	10 :	27.8:	26.2:	34.9:	35:
6: Repeat:	21.7:	18.5:	44.1:	7.3:	8 :	22.9:	24.4:	25.5:	40:
6: Not :	27 :	18.5:	41.8:	7.5:	8 :	24.2:	24.4:	32.7:	40:
5: Repeat:	13.8:	17.8:	40.3:	6.5:	6 :	21.1:	21.1:	10 :	33:
5: Not :	23.5:	17.8:	41.9:	7 :	6 :	23 :	21.1:	13.3:	33:
4: Repeat:	1.5:	12.7:	32 :	3.9:	4 :	16.5:	19.2:	23.3:	28:
4: Not :	12.9:	12.7:	33.5:	4.3:	4 :	19 :	19.2:	25 :	28:

In every grade the median reading scores for those having repeated grades is decidedly lower than the other medians, and in the 4th and 5th grades considerably under the norm for those grades. Here it is obvious that the reading ability of the pupils reviewing the work, or behind the normal rate of progress, is inferior to those not, whatever may be the cause. The reading achievement of the non-repeaters is above standard for all grade groups.

The writing scores, as with the first comparison, indicate variations in the abilities of both groups which assume no definite direction or tendency, and which also show a lack of uniform improvement in quality proportional to the amount of training received, with the exception of the median for the 12th grade students who have been required to remain in one or more grades a second year. This happens to be 66.1, based on a few cases, and not significant when it is realized that the majority of the students requiring this additional training because of limited ability are eliminated before they reach their senior year in high school.

An examination of the arithmetic medians reveals, with the exception of one case, a condition similar to what was found with the reading tests. The non-repeaters are consistently higher in achievement, and their medians well above the standard as a whole, while the others take the opposite trend. The situation as found in the 10th grade may be a coincidence, or due to additional training or lack of opportunity of those who have repeated work.

There can be no doubt of the difference of the two groups in language skill, as those maintaining normal progress, distinctly excel in 8 grades the other class, and while both appear to be below standard in different grades, the normal group are much less so, again emphasizing their more favorable standing. Variations in the rate of improvement is also evident for both groups. For instance, the 9th grade median is higher than the one in the 12th grade for those not having covered a portion, or all of the same work twice, and those in the 10th grade who have not had yearly promotions are lower than the same class in the 9th grade.

The results of the spelling tests continue along the same line as the reading, arithmetic, and language tests, if anything, more so, as the central tendencies of the group making normal progress are decidedly higher in each grade than the others, but not until the high school grades are reached does the median for either compare favorably with the norms. A tremendous improvement has to be brought about in this subject before either class in the lower grades is suitably proficient. Again such differences in the rates of improvement as were mentioned with the language scores are found in spelling, calling attention to variations in training,

habits, responses, and a host of other factors of learning.

In discussing the comparisons between the scholastic achievements of pupils attending town and rural school, it will be impossible to consider the high school students as all of them are enrolled in schools situated in third or second class school districts located in the towns, and many come from the rural settlements, making the high school enrollment a mixture of town and rural pupils. The same thing is partially true of the grade students but not to the extent of the former, as the elementary schools are more widely distributed through the county to provide facilities for the younger children.

While there is really little difference between the two types, due to the size of the towns, the environment, nature of instruction, and opportunities for schooling, each offer explanations for the academic progress of the two. This is shown by the results of the state wide tests in eighth grade English composition in 1925 (71, p. 71) in which the rural school pupils were found to be below standard in the four elements of the test, i. e., punctuation, capitalization, sentence structure, and grammar, while the pupils from town and city schools were well above normalcy. The reasons for this can be attributed to short school terms, inferior instruction, and possibly poor attitudes and interests of the rural children. Whether this condition would be found true for grades below the 8th is a matter for speculation but it seems that if the instruction is efficient, the opportunities for individual attention are much greater and should bear riper fruits in the rural schools than in the often overcrowded town and city school rooms.

With the Wheatland County group, Table LVI, page 96, the 7th and 8th grade town pupils exceed the rural groups in reading ability but are below the latter for the three other grades studied. The 4th and 5th grade town children are below standard, as well as the 4th grade rural pupils, and again the rates of progress are irregular. The two groups above these grades have medians all of which are favorably above their norms, leaving the poorer readers in grades 4 and 5, where the mechanics of the subject are apparently more difficult for both classes.

TABLE LVI

Median Test Achievements of Children Attending Rural and Town Schools.

Grade	Read	Norm	Writ	Arith	Norm	Lang	Norm	Spell	Norm
8 Rural	23.5	26	51.7	12.8	12	27.2	28.2	36.8	42
8 Town	33.9	26	59.5	11.5	12	29.8	28.2	41.4	42
7 Rural	27	22.8	43.5	11.6	10	24.9	26.2	22.8	35
7 Town	27.1	22.8	50	10.5	10	24.4	26.2	33.3	35
6 Rural	21.5	18.5	42.4	8.3	8	23.2	24.4	30	40
6 Town	20.1	18.5	47.3	7.6	8	24	24.4	28	40
5 Rural	19.5	17.8	39.5	7.2	6	21.1	21.1	20	33
5 Town	13.2	17.8	42.3	6.6	6	22.1	21.1	12.5	33
4 Rural	14	12.7	36.7	5.1	4	20.1	19.2	34.3	28
4 Town	11.4	12.7	42.4	3.9	4	18.8	19.2	20	28

The writing medians are, however, considerably higher for the town children in each grade, being the highest in the 8th grade at 59.5, and almost equaling the standard set by Koos, and recognized as being of a desirable quality of most teachers. Whether the subject is emphasized less by the rural teachers, or has less appeal to the country children, it is difficult to determine, but probably a combination of both conditions is responsible for the lower scores of the rural pupils.

In arithmetic reasoning the rural students are decidedly more capable than the town pupils. The medians for the former are higher in every grade, and below standard in none. The 4th and 6th grade town students are below standard, but only to a small extent, which will no doubt be corrected during the interval between the time the tests were taken and the month during which the scores the norms were taken from, were made. It is again hazardous to attempt an explanation of these differences as many factors no doubt contribute varying influences.

The language honors seems to be more in favor of the town students, the rural pupils leading only in grades 4 and 7, but both groups slightly below normal except in grades 4 and 5, where they equal and excel the standard, a condition just the opposite from what was found with the reading scores. Improvement in the medians by grades seems to be more constant than with the other subjects, as almost a steady increase is observed for both the rural and town pupils in each successive grade.

In spelling, the town students excel the rural pupils but only in the two upper grades, below which the opposite is true. The spelling tests being of different forms for the upper and lower elementary grades may account for this difference, in that the test words are of different natures. But in any event the medians for both groups are sufficiently below standard to give cause for some concern, except for the 4th grade rural pupils, where the median exceeds the standard by 6.4 points.

In bringing the second part of this study to a close, the evidence at hand showspoints quite clearly to the influence of the different factors discussed, exertsupon the scholastic achievements of the pupils involved, and while the investigation is limited to a small amount of territory, with a comparatively few number of students, it is within reason to expect variations of a similar nautre to be found in other localities, and presents an interesting field for additional study by other workers.

SULMARY—Part II

Compared to other counties of the state, Wheatland County is making an effort commensurable with its ability, to provide educational institutions for its young people. The attendance and punctuality records show a desirable degree of cooperation on the part of the parents and pupils. The library facilities of the schools seem to be adequate for the present needs of the schools, and in illiteracy ranking, the county is the 12th lowest in the state.

A wide overlapping of ages is present in all grades. Less overageness, and more acceleration occurs with the girls than with the boys, although a discouraging number of both sexes are retarded. Over the state, 20% more students are making normal progress than are the local group.

The choice of studies differs by grades and sexes, the boys showing more interest for the scientific studies, and the girls more for the classical. The study of English is least preferred by boys, and few girls are attracted by high school mathematics. Both express a dislike for arithmetic above all other studies in the elementary grades, the other subjects meeting with varying degrees of popularity. Interest

is the chief reason given for studies liked best, and lack of interest and application explain the majority of expressions given as reasons for studies proving distasteful.

91% of the boys and 98% of the girls studied, contemplate finishing their high school work, while 51% of the boys and 71% of the girls are now planning on a college education. These percentages are large, and doubtless will not be realized because of the factors previously discussed.

Farming and teaching are the leading vocational preferences of the two sexes, though expressions for the former occupations occur mostly in the lower grades. About one-fifth of the boys are undecided as to their future vocation, compared to less than one-seventh of the girls. Engineering, aviation, mechanics, and electricity appear to hold the major interest of the boys, and nursing, stenography and home work are most attractive to the girls.

In standard test achievement, girls excel the boys in all subjects except arithmetic. Maximum and minimum attainments are present for both sexes, and wide ranges of scholastic ability are shown through the different grades. The groups as a whole are below the standard set by the norms of the tests in writing, spelling, and language, though the norms were for a few months in advance of the time the tests were given.

Children not having repeated one or more school grades have higher median scores in reading, arithmetic, spelling, and language, than those who have, and, as a whole, students coming from parent owned homes attain more success with the educational tests. Scholastic honors seem to be slightly in favor of pupils attending town or village schools, pointing to conditions more favorable to learning in the better organized schools and calling attention to existing inequalities in opportunity.

PART III

S O C I A L .

A study of the relation of the vocational activities of the majority of adults to their avocational choices, shows that the two have very little in common. The gulf that separates these two important social factors is due to the demands of the economic production system upon the mental and physical resources of the individual, the educational training he has received to fit him for his vocation, the intellectual limits of his appreciation, and such regulations as the elements of nature may impose upon him in the form of climatic and geographic influences. As a consequence of these conditions few of the adult members of society find recreation and pleasure in spending their leisure moments doing things which are allied with their life work, and a host of new forms of recreation are being demanded to take the place of ones which grow tiresome, or throw the individual in too close contact with his daily labors.

The same influences affect children's choices of the ways in which they spend their free time, only to a lesser extent, in that they are more free from economic restraints, less affected by educational revelation, and perhaps do not feel as much the effects of the natural forces mentioned as influencing the adult. It is to be expected, however, that the same desire to be in surroundings more in harmony with their interests, or in an environment which is not distasteful to , or trying upon, their instincts, is ever present.

In considering the social significance of the choice of studies made by the group, it seems desirable to determine what relation, if any, their avocational activities have to their choice of studies, or the other way around; What social activities in their free time offer diversion to them after they leave situations in the school room which are not compatible with their interests, and which tax their responses in a manner similar to the demands made upon the adult in his vocation such that he seeks leisure activities remote from his routine ones. In doing this, the expressions of the study liked least and the avocational choices of each student were compared and represent the preferences of a mixed, unselected group, of different ages, mentality, school achievement, social and economic advantages. To gain a more comprehensive measure of these conditions, similar studies and activities were grouped

under main headings to allow a larger number of cases for each comparison. Thus, under Social Science come history, economics, problems of American democracy, sociology, and the like, while under English are included such studies as language, grammar, and spelling. With the avocations, the Out-of-Door activities consist of hiking, riding, playing games, and other forms of outdoor recreations. The other headings are self-explanatory, as shown by Table LVIII. Here, the first column gives the studies least preferred, and opposite each of these subjects is shown the frequency of avocational choices of the different types for students expressing dislike for that study.

TABLE LVIII
STUDY LIKED LEAST AND AVOCATION

Avocation

Study	Read	Out.D.	Music	Arith	Art	None	Mech	Home
Soc. Science	55	56	4	10	6	5	8	9
Math.	53	31	4	10	5	5	5	7
English	49	45	6	12	4	6	7	10
Natural Sci.	20	15	3	2	2	1	1	2
No Choice	15	9	4	2	2	5	3	0
For. Lang.	15	5	0	2	0	1	1	0
Phys. Sci.	14	2	0	0	0	4	0	0
Reading	14	8	3	3	2	4	5	6
Commercial	4	1	0	1	0	1	0	0
Art	2	3	0	0	0	0	0	0
Music	1	7	0	0	0	0	1	1

The social sciences appear to be the most unpopular with the students, and almost one-half of these pupils prefer to read and engage in out-of-door recreation, with a scattering of other choices as shown. The reading activity is a desirable one but obviously does not pertain to the social subjects they dislike in school. Those not caring for mathematics, including arithmatic, also devote, or prefer devoting, their leisure time to reading and out-of-door sports little related to mathematics. There are, however, fewer in this class interested in the latter avocation than from the social science group. Students having difficulty with English do less reading and spend less time out of doors than the two preceding types, but a slightly larger number seek recreation with music, athletics, and activities in the homes such as sewing, caring for children, and keeping house. Those not caring for the study of natural sciences, in

proportion to their numbers are distributed among the various avocational groups about the same as the preceding types. Likewise, for the pupils expressing no distaste for school subjects, except that as many have no particular hobby and none care for home life as recreation. Reading and being out of doors consist of the free time activities of those who do not care for foreign languages, and it is observed that no pupils disliking this subject are interested in art, music, or home activities. The physical sciences seem to hold little interest for 20 pupils and this type spend most of their spare time reading, being out of doors, and "doing nothing". 14 students mentioning reading as the study cared for least in school, enjoy the same subject when free to pursue it in their own way. This is no doubt caused by the unpleasant associations connected with the subject in the school room, either in the form of reading material itself or the method of its administration. A variety of leisure interests are also shown for this group. Commercial studies, art, and music each fail to be attractive to a few pupils and their avocational interests center around reading and open air diversions.

The social science courses, English, and mathematics are each noted for their unpopularity, and the conditions surrounding the teaching of these subjects make it improbable that the content of the studies are to the advantage of the individual socially in that he will profit extensively by the teachings of any of them in his every day contacts with his fellows, or use the knowledge he has gained from their study in the advancement of his own economic or social interests. This means that the training in these subjects as preparation for later life is wasted effort to some extent, and while the subjects should not be entirely neglected in the instruction of the group expressing little interest in them, the methods of teaching and the arrangement of content should be modified to make the studies a more vital element in the social life of the pupil.

In part I of this study, the mental status of students planning on attending college was found to be somewhat superior to those who entertained no such aspirations, and the number making the decision to go beyond the high school was commented upon as being much greater than will actually enroll in or graduate from an institution of higher learning, due to natural and economic causes, which eliminate many as the different school grades are reached. Both of those causes are of social

concern, as they determine the character of the social organization in any community.

Taking up the first cause, that of natural elimination, which forces the individual to discontinue his scholastic preparation because of having reached the peak of his learning ability, and who by compulsion or choice takes his place in the ranks of the workers, it is found (by accepting Terman's statement that a student with an IQ below 90 will probably not be able to meet college graduation requirements) that over 17% of the girls and 18% of the boys concerned in the survey, will be almost certain never to graduate from college because of mental deficiencies. Adding to this number those who will not complete the 8th grade or even high school for other reasons, the number actually becoming college graduates will be materially reduced, and a demand thereby created for jobs requiring no great amount of intelligence to care for the numbers.

Those who will not be able to attend a college or university because of economic conditions, will again swell the numbers seeking employment for which their limited training and ability fits them, and as a result, a group qualified mentally, or by training, for only unskilled occupations, will vie with each other for places of security in the economic organization of their locality. Those who are more mentally alert will fare better than the less fortunate even though they are forced to remain temporarily, at least, on the same occupational level. Considering the former class, Table LIX, page 103 gives the number and per cent of students planning on higher education as they are distributed in homes having annual incomes as shown. Beginning with the $500-999 family groups, a gradual increase in the per cent of each group anticipating college attendance is seen for each of the higher incomes, and a smaller per cent is likewise found of those not expecting to attend. The number undecided as to their future academic careers likewise diminish proportionately in the more well-to-do families. Other things being equal, the children from homes having larger incomes will likely be less handicapped in their college plans because of funds than those whose parents are unable to share the necessary part of their income for the expenses of their children attending school away from home. The majority of the students come from homes in the $1000-1999 class, and the amount available for their education will depend upon the number in the family and the other obligations of the parents, but it is

questionable whether many homes in this class will be able to spare enough to defray all of the expenses of a college education. While part time work and other opportunities in and about most institutions will take care of some of the needs, it will benefit only a few and those to a limited extent, leaving a majority without adequate financial assistance, and thus increase the number who will be forced to discontinue their preparation and go to work.

TABLE LIX

Family Income of Students Planning on Attending College.

	$500-999		$1000-1999		$2000-2999		$3000-3999		$4000-4999	
	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	26	53	283	63	89	71	14	78	1	100
No	17	34	120	27	21	17	2	11	0	0
Undecided	6	13	40	20	14	12	2	11	0	0

It is improbable that the number, mostly girls, (see Table XIII, p. 24) who have chosen teaching as a career, will ever realize that ambition, even though the majority plan only on rural school work, in the following yeam, and that even if the number indicated actually qualified there would be enough teaching positions locally to take care of the supply of teachers. This will put even a greater strain on the resources of the county in caring for the less highly trained groups, and will result in many more actually engaging in home work and the more menial tasks than have signified their intentions of doing so, if of course, they remain in the county which probably most of them will.

There will be ample room for those who would like to practice medicine, by the time they have completed their preparation, unless their places should be taken by outsiders in the meantime, and as these are mostly boys and few in number, this presents no great problem. As mentioned before, there will be many more girls doing home work than now realize the fact, and while this employment may not be extensively remunerative, it will be wholesome training for the wives of tomorrow.

Undoubtedly, those planning on stenographic and nursing careers will be forced to look elsewhere for employment, as there is only a small demand of such workers in the county, and

which again will cause the ranks of the home workers and other vocations to be swelled beyond the present expectancy.

Opportunities will not be limited for those choosing bookkeeping and journalism as at present both are in demand and the number choosing such occupations will not exceed the demand within the next few years. The same thing is true of the self-styled future business executives. With changes, failures, and withdrawals by other causes of this class of workers from the field of competition, and the possible development of the county, there is some indication that conditions will be favorable for the establishment of additional or successive businesses.

Those interested in electricity and aviation, if they realize their hopes, will have to plan on working away from their present homes if they stay in their choice of vocations, as at present neither industry will support locally, the number signifying their intention of entering it, and it is not likely that either activity will reach the necessary stage of development to care for additional workers in the near future. This class of students may take up the mechanical trades to an advantage, as they are in harmony with their interests, and will no doubt provide employment for the number concerned.

Banking, clerking, farming, and pharmacy, each, can be engaged in productively by the number interested in such work, as these vocations are at the present time not overdone locally, and the inevitable replacements in them will offer opportunities for the employment of many.

Engineering, forestry, sailing, dancing, acting, and pugilism offer few opportunities within the county, and it is obvious that those interested in these lines will have to move to other fields to engage in them, although such will not likely be the case, as the latter four have few aspirants, and, being peculiar to local environment, will probably never be realized.

Such vocations as carpentry, railroading, laboring, dentistry, telegraphy, law enforcement officer, mail carrier, and plumbing are all potential possibilities for the local group, well within the reach of those choosing them and may be engaged in profitably by those who have the necessary qualifications, without over-balancing the economic organization of the county.

Such a theoretical disposition of the vocational choices is not an accurate description of what the future holds in store for the local group, but, based on past experiences, it allows an approximation to be made of what the possibilities are, which is adequate for a study of this nature. Allowing for early marriages and retirement to the home by many of the girls, the problem is concerned primarily with boys, and shows that when the variables governing the situation become effective, many boys will be forced to make other vocational plans, or migrate to other parts of the state or nation if they are to gain a pleasant livelihood.

The character of this migration, if it assumes the proportions shown by the activities of the parents, who apparently heeded Horace Greely's advice to head West, will no doubt by pronounced, but hardly to the extent shown for the parents by Table XVI, page 32, as with the period of exploration practically over, such a westward trend will not again occur, even to the Pacific Northwest.

Sixty-three children reported the birthplaces of their fathers and mothers as being in Montana; 326 stated that their fathers were born in other states, and 146 have foreign born fathers. 465 students have mothers who were not born in Montana, and 107 who are foreign born. Reducing those figures to per cents, the following ratio is shown:

	Fathers	Mothers	Both
Montana	10%	10%	10%
Other States	67	73	70
Foreign	23	17	20

A larger number of children have mothers born outside of the state than fathers, and fewer have foreign born mothers. Disregarding the size of the different families it appears that the fathers are of a more migratory nature than the mothers. This follows the usual procedure of the male going into new country first, establishing himself, and then marrying a mate who is less likely to be from his birthplace if the distance between that place and the new country is of any great distance.

Montana, being a comparatively new state, no doubt explains the cause of so few native born parents in the local county. Table XVI shows these people to be coming mostly from the eastern states, particularly from the corn belt, though

several far East, Southern, and Western states are represanted, but in the minority. Many have come West from Eastern farming sections to engage in agriculture. Some have failed and gone into other work, but the majority are still engaged in agricultural pursuits.

The foreign born parents all are either farming or working in the common labor occupations and represnet 19 different nationalities, principally of the Nordic Stock.

Aside from making the initial move into the state many of the people now residing in the county have been forced to frequently move about in order to live, as evidenced by the different number of schools the children have attended. This is shown by the following table.

TABLE LX

Schools Attended by Children of Different Birthplaces

	No.	Med. No. Schools	Range
Montana	401	1.51	1-9
Other States	213	1.43	1-5
Foreign Born	11	3.33	1-4

While the majority of the children included in the survey are Montana born, the average number of schools attended by them is greater than for children born outside of the state, and the range of schools attended is decidedly greater. The foreign born children, being few in number, have as an average better than 3 schools to their credit, though there are not as many having attended a large number of schools as shown by the range. These children are mostly Canadian born, coming from all parts of the Dominion and belonging largely to the agricultural group.

The fact that 401 of the 635 children studied were born in Montana shows that, while the parents are from widely scattered portions of the globe, they have been more or less settled, as a group, during the past several years, their moving around occurring mostly within the boundaries of the state, and explained by economic necessity rather than wanderlust.

The distribution of father's occupations and mother's pre-marriage vocations have previously been discussed and found

to embrace a wide range of activities on the part of both parents, bringing to light the different social types or classes from which the parents came. Lennes (36, p. 248) draws the conclusion: "that in any one locality there exists a pretty definite social scale and that inter-marriage between members of different groups diminishes rapidly in number in proportion to the gap between the groups to which they belong." He further contends that inter-marriage between different occupational groups as distinguished by the Taussig scale, are few in number and exceptions to the rule; that the lower and higher inherited qualities possessed by the different classes of society determine to a large extent their interests, hopes, and desires, which in turn influence their choice of mates and the character of their offspring after marraige. Thus a woman from one of "the best" homes seldom mates with a common laborer, but if such a union does occur, the children will hardly inherit all of the finer qualities of the mother, and the select strain of the mother's family is interrupted.

In an effort to determine if such a tendency is present in the local county, certain information obtained from the social questionaire was tabulated from each child's reply. This consisted of listing the mother's pre-marriage occupation opposite the father's vocation as shown by Table LXI, page 108. The column headings across the page are the mother's activities before she was married to the father. Under each heading the figures in the parenthesis designate the number of children having mothers who engaged in the activities shown. The vertical scale lists the father's present occupation, and the per cents in the columns, the proportion of children whose mothers come under the classifications designated and whose fathers are in vocations shown to the left of the figures. Thus, in the survey, there are 10 children whose mothers were dressmakers, and 60% of these children have farmers for fathers; 20% of the 10 children are without fathers, and 10% of the 10 each have a doctor and a merchant as the male parent.

While the size of the families does not show exactly the true number of marriages between the different classes, there is some indication of the mating frequencies by the number of children in each group.

TABLE LXI

Per cent of Children from Parental Union Based on Father's Occupation and Mother's Maiden Activity

Father's Vocation	Mother's Pre-Marriage Vocation									
	Dress-making (10)	Clk. (58)	Student (27)	Home (462)	Teach (21)	Stenog (12)	Tel. Op. (16)	Fact (11)	Nurse (17)	Bkkp (7)
Dead	20%	5.1		4.2	6.0					
Farm	60	42.5	66.0	41.0	41.0	17.0		55.0	41.0	43.0
R.R.Wk.		20.4	7.4	11.8	12.0	25.0	60.0		17.0	29.0
Merchant	10	13.6	7.4	2.6	12.0	8.0	25.0			14.0
Tailor				.02						
Doctor		1.7		.02	5.0					
Minister				.06						
Salesman		1.7	3.7	1.9	6.0	8.0				
Police				.06	1.0					
Clerk		1.7		2.0	5.0	8.0			6.0	
Lawyer		1.7		.04		17.0				14.0
Mechanic	10	3.4	3.7	3.4	1.0	8.0	13.0	28.0		
For.Rngr				.02					6.0	
Laborer		3.4	3.7	10.2	8.0	8.0	6.0		6.0	
Printer				.04						
Painter				.02				9.0		
Carpenter			3.7	1.0					17.0	
Electri-cian		1.7		.06	1.0			9.0		
Teacher				.02	1.0					
Bkkeeper		1.7		.02	1.0					
Banker			3.7	.06						
Cook			.02							

Those children whose mothers clerked before marriage have fathers of different occupational prestige, varying from 3.7% as common laborers to 13.6% as merchants. The distribution also includes 42.5% as farmers.

By conjecture, it is possible to explain the matings that have occurred between different groups of parents, and also to see the possibility of romances quite unusual, but it must be borne in mind that the father's present occupation may or may not have been his economic status at the time of his marriage. This will invalidate the conclusions somewhat.

Mothers who were dressmakers before their marriage include those who "sewed", "made hats", and the like, and appear to have selected mates of various social standings, though restricted to three classes, farmers, mechanics, and merchants, there being more children from the first mentioned unions. Former clerks have husbands from many vocations but the majority are in the semi-skilled group. 58 children from these unions have mostly farmers as fathers.

Girls who were married while still attending school have 27 children, and husbands none of whom are above the skilled labor class. 66% of the children from these types of homes come from the farm, the inference here being that by marrying men who occupy no place of prominence on the occupational scale, they were married young while in the later years of high school or beginning college, where circumstances or perhaps environment would not allow a more fortunate choice.

Those mothers who "stayed at home", or "worked at home", after their schooling was completed, and before marriange, no doubt make up the majority of wives, as 462 children come from women of this type, the number being over 72% of the children included in the survey. Their matings with men on the various steps of the occupational scale may be explained by the wide range of social standards maintained in the homes from which the mothers came. However, 63% of the children born as an aftermath of these marriages, have farmers, railway workers, and laborers as fathers, the former two types predominating. It is interesting to note that only a small proportion of children are in higher occupational or professional homes resulting from these marriages. While many of the social elite women engage in no constructive economic production before, or even after their marriage, they, as a rule, are in a better position to marry in higher social classes than their less fortunate sisters who likewise are not producers, in the true sense of the word, and who because of their social status marry men, the majority of whom realize only mediocre achievements, as indicated by the occupation of the fathers. With the group in question it is quite probable that most of the mothers in the "home" class are of the latter type.

Former teachers are mothers of 21 children, nearly half of whom have farmers as fathers. It is quite likely that most of these women taught in rural communities and married enterprising young farmers of their choice, although present rail-

road workers, merchants, doctors, salesman, and common laborers, have been attracted by this type. Usually a teacher with a reasonable amount of academic preparation is more likely to marry a mate whose station in life is, or has the possibility of becoming, more in harmony with the environment which her training has given her to appreciate.

Stenographers, telephone operators, factory workers, nurses, and bookkeepers each have married men of different occupational levels, though as in the other cases, mostly farmers. Former telephone operators are the only class of mothers who have failed to enter into unions with the agricultural workers; railroad workers, merchants, and tradesmen, being their chief choices. There being comparatively few children from these women indicates they are fewer in number than the other classes just discussed, and that they are of different social environments.

The frequency of vocational preferences of both boys and girls has previously been discussed, together with the elements which influence those choices, and it was recognized that the latter were an outgrowth of environment and training, varying greatly with individual students.

In studying to what extent the influences in the home affect the vocational choices of young people, the relation of boys' preferences to their fathers' present occupation, and the girls' to their mothers' activity before marriage, was considered. To allow a more comprehensive comparison between these factors, the vocations were grouped into nine classes which differentiate clearly the position of each on the occupational scale as well as the requirements for the occupation. Thus under the professional group come those activities commonly included in that class; while the mercantile group includes clerks, and business proprietors. Bookkeepers, stenographers, and general office workers were considered as clerical, and the skilled trades were p ut in the artisan class. The remaining vocations not included by the common labor, agriculture, and domestic groups, were few in number and are included in the "other" occupations. Such an arrangement allowed a comparison to be made with the choices of 1076 St. Paul seventh and eighth grade boys as studied by Woods (6, p. 19-21), and shown by the table on page 111.

TABLE LXII

Vocational Preferences of Boys Whose Fathers' Occupations Were as Follows

Sons' Choice	Prof:	Merc:	PettyMerc:	Clerical:	Arti:	Lab'r:	Agric:
Professional	59%	35%	26%	30%	21%	16%	7%
Mercantile	6	25	11	16	5	13	7
Petty Merc.	0	1	5	3	1	2	7
Clerical	6	8	18	16	19	20	14
Artisan	9	15	18	21	38	25	29
Laborer	0	1	0	0	1	3	0
Agriculturer	9	6	3	8	5	4	29
Other	11	9	19	6	10	17	7

The figures here show some tendency for sons to choose an occupation much in line with their father's vocation, but there is also the propensity to choose activities which are higher on the occupational scale and consequently more renumerative than those of the fathers. This latter condition is the result of experience and observation in the home and social environment of the youth, and shows the desire of the younger generation to better their economic and social standing by engaging in pursuits on the level with, or above, the vocations of their fathers. There is also the tendency to avoid the manual occupations, but by the time these youths have reached manhood, many no doubt, will have been forced to occupy a laborers place in the field of production, after failing to meet the requirements of the highere occupations.

The influence that the father's occupational status exerts upon the son's plans for the future will vary, depending upon the conditions surrounding the relations between father and son, and the success the parent has attained in his field. The same thing is true between mother and daughter. A thoughtful and understanding mother is in a position to communicate her experiences and tastes in the matter of vocations to her daughter, who in turn can profit accordingly, depending upon whether the advice given is well founded, and engages the child's interest. This relativity of vocational ambition between parents and children is shown by Table LXII (a), on the following page, previously described.

TABLE LXII (a)

Vocational Preferences of Boys as Related to Father's Occupation, and of Girls to Their Mothers' Pre-Marriage Activities.

Students' Preferences	Parents' Vocation						
	Professional %	Mercantile %	Clerical %	Artisan %	Laborer %	Agriculture %	Other Home %
Professional							
Boys	19.8	16.8		14.4	16.5	12.0	4.0
Girls	70.4	63.0	70.0	84.7	77.0	45.0	69.0 49.0
Mercantile							
Boys		8.4	40.0	7.2	13.2	3.0	8.0
Girls	1.6	6.0			5.5		4.0
Clerical							
Boys	9.0			7.2		3.0	4.0
Girls	11.2	12.0	15.0		5.5		21.0 14.0
Artisan							
Boys	19.8	14.0	20.0	34.2	33.0	35.0	32.0
Girls			5.0	7.7		11.0	4.0 .05
Laborer							
Boys					6.6	2.0	
Girls	1.6				5.5	22.0	
Agriculture							
Boys		14.0		19.8	39.6	57.0	12.0 1.2
Girls	1.6					22.0	
Others							
Boys		3.6		1.8		2.0	8.0
Girls							1.2
Home							
Boys		2.8					
Girls			5.0		5.5		6.1
Undecided							
Boys	59.4	36.4	40.0	19.8	23.1	16.0	32.0
Girls	11.2	18.0	5.0	7.7			16.0 14.4

By comparing the two tables (LXII and LXII (a)), the difference between the preferences of a city and semi-rural group is observed, and while the numbers involved are not equal, a marked contrast appears, due to the dissimilar environment of the two types.

A smaller percentage of the Wheatland County boys of professional fathers have aspirations to enter the professions than the St. Paul boys, but the girls (mostly daughters of ex-teachers)

exceed both groups of boys in this respect. A smaller proportion of local boys whose fathers are engaged in mercantile pursuits likewise plan on professional careers, than the St. Paul group, and again the percentage of girls whose mothers were working at this type of employment before their marriage, is greater than either class of boys. No boys, but 70% of the local girls, whose father or mother at some time performed clerical duties, are interested in professional attainment, compared to 30% of the other boys. The percentage of the latter group, whose fathers were artisans, laborers, and agricultural workers, choosing professional activities as a livelihood, is also greater than the local boys, and again more girls from this class of parents are interested in the profession.

None of the Wheatland County boys of professional fathers entertain business or mercantile interests, compared to 6% of the St. Paul boys. 1.6% of the local girls whose mothers were teachers plan on this class of employment. 8.4% of the sons of local merchants plan to either succeed their fathers in business or embark upon a similar venture of their own, while 6% of the girls plan to engage in this pre-marriage activity of their mother. The proportion of both sexes with such preferences is decidedly less than the St. Paul group. No girls whose mothers were employed in clerical work have decided on that activity, while 40% of the boys of fathers in this class are interested in similar work, which is 37% greater than the other boys. Girls of artisan mothers express no interest in those fields, and little difference exists between the two groups of boys. 5.5% of the daughters of mothers who performed common labor are interested in mercantile work, the percentage here being less than that for the Twin City youths. A smaller ratio of local boys from the farm experience an attraction to business activities, than their schoolmates in the east, and no girls of the local group are concerned.

Clerical work appeals to girls from all classes of mothers, except those of the artisan type, to a greater extent than it does to boys whose fathers come in that class. This being more of a woman's work, accounts for the differences found.

An almost negligible number of girls are interested in artisan pursuits, while many of the local boys of all

classes of fathers contemplate entering the trades, the proportion being greater among the sons of fathers who are tradesmen. The ratio of local youths from each class of fathers is greater than the other boys except in the mercantile and artisan class, where more of the city boys are interested in that work.

Very few boys from both comparisons, as well as the local girls, show any inclination toward common labor as a means of earning their living in the future.

The call of the farm reaches boys in the city from all classes of homes, but is not felt by any of the local boys whose fathers are professional or clerical workers. In the other classes, however, the ratio of future farmers is decidedly greater for those who already live in an agricultural region. 57% of the local boys, and 22% of the girls whose fathers or mothers are farmers indicate their desire to continue in the work, compared with 29% of the St. Paul boys in the same class.

Many of the local students are undecided about their life work, as was also previously mentioned, and a larger percentage of boys who are thus handicapped come from fathers in professional work than from any one other class. The smallest ratio of those undecided is among sons of farmers. Girls whose mothers were in the mercantile class show the greatest indecision, and those whose mothers were artisans, the least.

Other comparisons between the two tables, separately and with each other, are also observed. These include the inclination for a greater percentage of girls to be choosing occupations more in harmony with the work engaged in by their mothers before her marriage, than for the boys to follow in the footsteps of their fathers. The girls also appear to have higher and more refined tastes than the boys, considering the occupational status of each parent.

Nearly half of the girls whose mothers remained at home before being married, have professional ambitions, mostly teaching, but nevertheless in contrast to the positions occupied by their mothers. 14.4% of this class of girls are undecided as to their vocation compared to 5% of the daughters of former clerical workers.

While there is the same tendency, as found by Woods, for

the local boys to prefer vocations closely related to those of their fathers, there is also an expression of the desire to excel the fathers, and the same thing is found to be true between the girls and their mothers. Often both parents may caution their offspring about profiting by their experiences, and this may influence to some extent the trend of children's preferences, but it is also quite possible that children make these decisions themselves, after poverty or other restrictions have limited their opportunities and made them determined to better their conditions.

The mental status and educational achievements of children coming from owned and rented homes was found to be slightly in the favor of the former, as shown by Tables XXIV, p. 40, and LIV, p. 91. The explanation of this distinction seemed to lie in the supposition that by being more economically independent, the majority possessed superior traits which allowed them to acquire property and positions, less attainable by the weaker parents.

In an effort to determine if any relation exists between the income of parents, and their real estate holdings, the two questions were tabulated from the information furnished by the students on the social questionaire relative to the amount of their parent's annual income, and whether they lived in owned or rented homes.

Such a comparison has the shortcoming of not allowing definite conclusions, due to the varying number of children in the families with different incomes, but will show at least the social status of the children in this respect. Table LXIII gives these relationships.

TABLE LXIII

Frequency of Children Living in Owned and Rented Homes with Classes of Income.

	$500-999	$1000-1999	$2000-2999	$3000-3999	$4000-4999
Own	22	229	77	11	1
Rent	25	210	51	7	0

It is obvious that a larger number of children live in owned homes than in rented ones, and from the hypothesis that the larger families are usually of the poorer classes, the

figures appear more significant than at first thought. Fewer children come from owned homes in the (500-599) class, indicating either smaller families or the lack of ability on the part of parents with limited incomes, to own property. In each of the other groups, the figures show more children in the parent-owned homes.

Geographic location will influence such a comparison, causing no doubt, more children to be found in rented homes from the more densely populated districts than in parent-owned ones. As the population decreases, other things being equal, the value of real estate likewise decreases, until it approaches a figure within the reach of workers with moderate or even small incomes. Temporary vocational placement of the parents will on the other hand stimulate property ownership by them, and requires frequent changes of residence, making home purchases impractical even though they possess the means with which to buy. These conditions affect the social welfare of children for good or bad, depending upon the nature of the conditions surrounding their homes.

In connection with the home environment of the children studied, the types of musical instruments available in the home of each child were considered with the intention of determining what advantages the children had from this wholesome influence. The figures in the following table indicate the number of children having access to the instruments designated, and are arranged in order of their frequency.

TABLE LIX

Number of Children Having Musical Instruments in Homes.

Pianos	276	Violins	73	Ukeleles	10	Drums	2
Phonographs	254	Banjos	21	Accordians	10	Bagpipes	2
Radios	105	Harps	18	Saxaphones	5		
None	83	Guitars	18	Cornets	4		
Organs	75	Mandolins	17	Trombones	3		

Over one-third of the children have pianos in their homes, that instrument being the most popular. This does not mean that the number of children shown, play the piano. Far from it. In many homes having a piano perhaps only one and sometimes no children take music lessons either through choice or the lack of ad-

equate instruction because of finances or opportunity.

Phonographs are the next most popular instrument, and if the proper records are obtained, can contribute more to the child's musical education than hand instruments which are put to little use in this respect. It is,however, doubtful whether many homes possess phonograph records of real musical value, the majority usually having a collection of popular jazz and other forms not overly rich in aesthetic content, offering little or no training for the appreciation of the beauties of music.

About one-sixth of the group reported having radios in their homes. This instrument is a most effective educational agency, especially for children with limited social opportunities. Not only can they listen to the best of music, but are given the opportunity of acquiring other desirable knowledge which otherwise would be beyond their resources. With the younger set, however, the radio has the same shortcomings as were mentioned for the phonograph, in that a jazz orchestra is too often tuned in in preference to an opera broadcast.

Eighty-three children, over 13% of the number studied, have no music at home, and the mental status of this type has been previously commented upon. Children in such homes, unless they are fortunate enough to have music at school, are being deprived of an influence which should be present in all of their lives.

Organs appear to be quite popular, 75 children having such instruments with their reach, and which no doubt occupy places in many homes in the county as family heirlooms, the organ rapidly losing its popularity as a home fixture.

String instruments, such as the violin, banjo, guitar, mandolin, and ukelele are mentioned in the order given, but with the exception of the violin, not in any great numbers. Mouth harps, accordins, saxaphones, cornets, trombones, and even bagpipes are also present, and in the home of a dance orchestra leader, a set of trap drums are to be found.

With the exception then, of the homes not possessing music equipment, a variety of instruments are available for the children's instruction. These may or may not be put to

good use in furnishing amusement or encouraging a sense of music appreciation, depending on the training and social status of the parents and their attitude toward music education in the home for the young.

In bringing the study to a conclusion, the religious preferences of the children will be considered, relative to the number of denominations represented, and the conditions surrounding their religious environment. It was found that nearly one-half of the children considered did not attend church for various reasons, and that those who did attend were as a group somewhat superior mentally to those who did not. With less than one-half of the young people of various ages being attracted by this agency for religious instruction, it appears that either the church or the parents fail to create a desire on the part of the youth to benefit by religious education, but when it is realized that a large number of the children are too young to grasp the significance of the usual church service, and that in the rural districts, distance often makes attendance impossible, the situation is not as serious as it would first seem. There can be no doubt however, that more children could be spiritually benefitted, than are being so-reached at the present time, and that it would be to the social advantage of the group for a larger number to come under the influence of the church.

That denominational allegiance among the Protestant groups is often determined by the proximity of a church to the homes is evidenced by the fact that in districts where only one church is maintained the majority of the children expressed preference for that church regardless of their different nationalities. With the Catholic group, however, regardless of the location of the church, no church other than their own is attended, bringing forth the fact that loyalty to their belief does not permit the lack of unity shown by the Protestant group. The distribution and rank of the denominations is as follows.

	No.	%		No.	%
Presbyterian	147	23	None	87	13
Methodist	130	20	Lutheran	47	7
Congregational	111	17	C. Science	9	1
Catholic	101	16	Jewish	3	0.4

The Protestant denominations represent the majority, Catholics ranking fourth in numbers and those of Jewish faith last. 13%, or 83 of the children expressed no religious faith,

and Christian Scientists are few, having no church organization in the county. Only the older denominations are represented, showing them to have better established organizations, and permitting activities which are not entirely self-supporting in the local county.

The children attending the different churches, if properly instructed, have it in their power to, as citizens of tomorrow, practice religious toleration of those having different beliefs, and in so doing, promote the interests of society as a whole. This question should be given careful consideration by the church in its teachings of young people as it is only through proper religious education that the elements charged with creating animosity between different creeds can be abolished for a sounder spiritual appreciation and understanding by all.

SUMMARY—Part III

It is evident that students tend to engage in leisure time pursuits which are more in harmony with their keener interests, and that they try to get away from situations which, in the schoolroom are trying upon their mental and physical resources.

In addition to being more intelligent, a greater number of students having plans for higher education come from homes with the larger incomes, and the per cent of those planning on college or university training increases directly as the family income increases. This points not only to the more fortunately situated families planning to continue their positions in society, but shows that the less fortunate groups are reluctant, at least, in making plans or entertaining thoughts for bettering themselves.

Many pupils will be forced to alter their present vocational choices, due to the lack of natural qualifications, and opportunity to prepare themselves. This will cause some dissension in the ranks of those who have their hopes shattered, and no doubt will result in many having to go to other sections of the country to obtain permanent employment in their chosen fields, or work for which they are best fitted.

The small number of Montana born parents (10%) compared to the 70% born in other states and 20% in foreign countries,

shows the character of the immigration into the state, particularly from the Corn Belt, by those who are helping develop the Northwest. That these people remain fairly well settled after moving into the state is evidenced by the small number of schools attended by their children, the number being even less than that for children whose parents are born in Montana.

There is some evidence of the predominance of intermarriages between members of the same social level, when considering the pre-marriage activities of the mothers, the present occupation of the fathers, and the number of children resulting from these marriages.

In the matter of vocations, there is a tendency for both boys and girls to choose occupations much in line with the work of their parents, but usually occupying a higher place on the occupational scale. No cases on either sex were obtained where the child's vocational choice was below that engaged in by the parent. The largest number of boys undecided on their life's work are sons of professional men. Only a few girls have not made vocational plans, and these come mostly from the poorer homes.

There appear to be more children in parent-owned homes than rented ones, and the income of the parents of these children is more substantial, considering the group as a whole. Eighty-three children (over 13%) have no music in their homes, but the balance are well supplied with string and wind instruments, as shown by Table LIX. Likewise, 13% of the children profess no religion, though seven creeds are represented throughout the county, offering an opportunity for the teaching of religious toleration, which can do much in bringing about solidarity and cooperation in the group concerned.

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