1926

The Intelligence of Indians in the schools of Montana data secured by an intelligence survey in federal state and mission schools

Ruth MacFarlane
The University of Montana

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THE INTELLIGENCE OF INDIANS IN THE SCHOOLS OF MONTANA

Data Secured By
An Intelligence Survey in Federal, State
and Mission Schools

A thesis presented in partial satisfaction
of the requirements for the
Degree of Master of Arts

By...

Ruth MacFarlane, Ph.C., B.S.

Montana State University
1926
Part 2 (cont'd)

7. Is this student upon his own resources to such an extent that he must earn much or all of his way through school?

8. Race (Do not omit this question. See letter of instruction for information to be given here.)

Name of teacher or principal:
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INTELLIGENCE OF INDIANS IN THE SCHOOLS OF MONTANA

The Aim, Material, and Method of this Investigation

During the spring of 1924, while race differences were being studied in a class in educational psychology, the writer wondered just what the comparative ranking of Indians might be. The instructor suggested several possible sources of information, but nothing decisive could be found. After the idea had lain dormant for a time it was selected as the topic for the present investigation.

The careful giving and interpretation of the results of intelligence tests is probably the best possible basis for an understanding of Indian intelligence. The writer used standard intelligence tests and made comparison with whites to determine what significant relationship exists between the intelligence of Indians and whites and between the various blood mixtures of Indians.

There were three major reasons for undertaking this investigation. First, the intelligence of Montana Indians has not been studied before. Only within the past two decades have efficient objective tests with which to measure intelligence been available. Much work with these has been moving toward the standardization of a measure for the intelligence of white people only. Not until 1913 did Terman adapt the Binet-Simon tests for use with American children rather than French. During and after the World War Otis utilized various methods and materials that reached completion in the Otis Group Test. Another reason this problem has not been studied is because many Indians are in attendance at government or mission schools where the financial burden of a testing program might be difficult to handle. Chiefly for this reason the field is left open for individual study. The writer has succeeded in finding only one such investigation: The Intelligence of Full Blood Indians by Thomas N. Garth in the Journal of Applied Psychology, December, 1925. The findings of the author agree rather closely with those in the Montana study although
most of the Indians in Montana are not living in so primitive conditions as those described by Garth. Further reason why intelligence of Indians has not been investigated is the wide distribution of schools where numbers of Indians are in attendance.

In the second place, this investigation was chosen because Montana seemed a good field for such a study. It was thought that the obstacles mentioned above could be largely overcome.

In the third place, the writer had a definite conviction that Indians differ from whites in native intelligence and that they show some outstanding racial characteristics that might be utilized as a basis for school education. This conclusion was gradually formed during several years of teaching on or near Indian reservations.

The Otis tests were employed in the study at the recommendation of Dr. Freeman Daughters, Department of Education, University of Montana, Missoula, Montana. The Otis Group Intelligence Scale, Primary Examination, Form A, was used for grades one to three, inclusive. The Otis Self-Administering Tests of Mental Ability, Higher Examination, Form A, were used in high school. These tests were selected in making the study for the following reasons:

1. They are tests of well-known reliability.

2. They are tests that are very easily administered. This is an essential factor in making a study in which the investigator could not personally administer all the tests.

3. These tests are widely used in the school system of Montana. This will make comparisons and checking easy when tests are more widely used in the Indian schools of the state.

During the spring of 1925 and the fall of 1926 intelligence tests were given to pupils in federal, state and mission schools of Montana, which
enrolled Indians. At first an attempt was made to study Indians only, but several of the schools refused to give the tests unless they were given to both Indians and whites. So the whites are used in this investigation for a comparative study of pupils in the same environment. Schools where Indians were enrolled were located by writing to the superintendents of the various Indian reservations in Montana. With the exception of one reservation, superintendents gave excellent cooperation. In the case where one reservation superintendent failed to cooperate, several of his schools were reached by writing directly to village or town superintendents.

The data for this study were derived from:

Birney Bay school, Birney, Montana
Blackfeet Boarding School, Browning, Montana
Boyd School, Brockton, Montana (Public)
Browning Public School, Browning, Montana
Burshia School, Poplar, Montana (Public)
Crow Agency Public School, Crow Agency, Montana
Fort Belknap Boarding School, Harlem, Montana
Fort Peck Boarding School, Poplar, Montana
Lame Deer Day School, Lame Deer, Montana
Lodge Grass Public School, Lodge Grass, Montana
Poplar Public School, Poplar, Montana
Riverside School, Poplar, Montana (Public)
Rocky Boy Day School, Rocky Boy, Montana
St. Labre's Mission, Ashland, Montana
Tongue River Training School, Busby, Montana
Villa Ursula, St. Ignatius, Montana
Wolf Point Public School, Wolf Point, Montana
Wolf Point Indian Training School, Wolf Point, Montana

The tests were given at the Poplar Public Schools, Fort Peck Boarding School, and the Wolf Point Indian Training School by the writer. In the other instances the tests were given by school superintendents or teachers. Very definite directions for administration were sent with the tests in every instance. Teachers were urged not to answer any questions after the test begun and the importance of the time element was stressed.

In addition to information derived from the tests data came from questionnaires. In the first four grades questionnaires were filled out by the teachers. In the intermediate grades, grammar grades and high school, one part of the questionnaire was filled out by the pupil while the second part was filled out by the teachers or principals. Where it was possible the questionnaires were checked with government records. Samples of the questionnaires are attached as an appendix.

In examining the data obtained from the Otis tests and the questionnaires, the attempt is made to answer definitely the following questions which are of practical importance. These are listed in order of their significance in terms of the inquiry.

1. Are intelligence quotients lower for Indians than for whites?
2. Do full blooded Indians show higher intelligence quotients than mixed bloods?
3. Are there substantial differences in the intelligence levels of the boys and girls.
4. Do Indians score higher in tests dealing with nature and primitive life?
5. Are Indians greatly retarded in the schools?
6. How long do Indians remain in school?
7. Do those Indians who are in attendance in "white" schools score higher than those in attendance at Indian schools?
8. What proportion of Indians in the upper grades and high schools of Mont-
9. What specific plans for a career have the pupils studied, and what are the comparative rankings of groups making each choice?

10. What upper grade and high school subjects are liked best and least, and how are intelligence quotients related to these preferences?

11. Are Indians greatly retarded as to mental age, and what relationship exists between median intelligence quotients and formal education?

12. How do Indians of different tribes compare with one another in intelligence?
The Detailed Investigation and its Results

1. ARE INTELLIGENCE QUOTIENTS LOWER FOR INDIANS THAN FOR WHITES?

Data for this question was obtained by figuring intelligence quotients from the tests and from information given on the pupils' and teachers' questionnaires. Teachers replies regarding the amount of Indian blood were accepted as correct except in the schools where the writer administered the test. Government records were used by the writer as the source of information regarding the amount of Indian blood.

In dealing with this question any person with any amount of Indian blood is classified as an Indian. The lowest amount of Indian blood present in any case is one-sixteenth. Of the cases studied 49.8 percent were full-blooded Indians; 20.9 percent were one-half blood Indians; 13.5 percent were one-quarter blood Indians; 9.5 percent were three-quarter blood Indians; while 6.5 percent were classified as miscellaneous. The miscellaneous group includes those of one-eighth blood and the multiples of one-eighth (1/8, 3/8, 5/8, 7/8), several individuals of one-sixteenth Indian blood, several of five-ninths Indian blood, one ranked as one-eleven thirty-seconds, and one listed as nineteen thirty-seconds. These last named cases have probably resulted from the fact that the child's report of the amount of Indian blood has been taken, and the Indian does not figure the fractions of blood as the white man does, and probably does not figure accurately.

Intelligence quotients grades four to twelve are found by plotting the score of the individual in the appropriate interpretation chart by placing a dot on the horizontal line representing his score and on the vertical line representing his age. The intelligence quotient of the individual is stated at the end of the curve in the intelligence quotient column. Intelligence quotients in these tests, grades four to twelve, are found by adding the score made to one hundred and subtracting from that sum the normal score for the given age. In the primary grades intelligence quotients are found by adding to or subtracting
from one hundred four fifths of the deviation from the norm. In some cases the birthdays were not known. These instances were figured at the half year mark e.g., age given, seven years; age used in scoring, seven years and six months. The method should throw the totals approximately where they belong.

A comparison of the intelligence quotients made in this study shows that the intelligence quotients are lower for Indians than for whites.

Table I - Race Comparison

<table>
<thead>
<tr>
<th></th>
<th>Arithmetical Mean</th>
<th>Intelligence quotient medians</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total cases</td>
<td>Boys</td>
</tr>
<tr>
<td>Indians</td>
<td>1050</td>
<td>88</td>
</tr>
<tr>
<td>Whites (Studied)</td>
<td>338</td>
<td>99.6</td>
</tr>
<tr>
<td>Whites (Test standards)</td>
<td></td>
<td>100.</td>
</tr>
</tbody>
</table>

In this study the arithmetical mean, found by dividing the total of the quotients by the number of cases, is 11.6 lower for Indian boys than for white boys, and 13 lower for Indian girls than for white girls. The intelligence quotient median for Indian boys is 11.8 lower than the median for white boys studied, while the intelligence quotient median for Indian girls is 10.6 lower than the median for the white girls studied. The lowest intelligence quotient for Indians is 87 with the highest at 150; for whites the lowest intelligence quotient is 53 with the highest at 148.

2. DO FULL-BLOODED INDIANS SHOW HIGHER INTELLIGENCE QUOTIENTS THAN MIXED BLOODES?

As stated under question 1, the Indians studied were grouped as full-blooded, one-half, three-fourths, and miscellaneous. The miscellaneous group includes those one, three, five and seven eights Indian blood, five-ninths, one sixteenth, eleven thirty-seCONDS (one) and nineteen thirty-seconds. intelligence quotients are used in the comparison.
Full-blooded Indians do not show higher intelligence quotients than mixed
bloods. The intelligence quotients increase in inverse proportion to the amount
of Indian blood. The median intelligence quotient for full-blooded Indian boys
is 78, that for girls 76.7. Three-quarter blood Indian boys show a median
quotient of 84.5, girls 85.5; half blood boys show 88.3 and girls 91; while
quarter blood boys show 89 and girls 95.5. The boys of the miscellaneous group
show the median intelligence quotient of 95.5; the girls show 97.2. There is no
break in the regular trend of increasing scores with decreasing amount of Indian b
blood.

Table II - Median Intelligence Quotients for Indians and
Mixed Bloods

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th></th>
<th>Girls</th>
<th></th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cases</td>
<td>M.Q.</td>
<td>Cases</td>
<td>M.Q.</td>
<td>Cases</td>
</tr>
<tr>
<td>Full blood Indians</td>
<td>248</td>
<td>78</td>
<td>272</td>
<td>76.7</td>
<td>520</td>
</tr>
<tr>
<td>Three-quarter blood</td>
<td>44</td>
<td>84.5</td>
<td>56</td>
<td>85.5</td>
<td>100</td>
</tr>
<tr>
<td>Indians</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Half blood Indians</td>
<td>104</td>
<td>88.3</td>
<td>115</td>
<td>91.</td>
<td>219</td>
</tr>
<tr>
<td>Quarter blood Indians</td>
<td>76</td>
<td>89</td>
<td>64</td>
<td>95.5</td>
<td>140</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>30</td>
<td>95.5</td>
<td>41</td>
<td>97.2</td>
<td>71</td>
</tr>
</tbody>
</table>

These intelligence quotient medians show that psychological scores for Indians
increase in inverse proportion to the amount of Indian blood.

The percentage of all Indians, who make or exceed the median normal intelli-
gence quotient for whites also rises in inverse proportion to the amount of
Indian blood. Of the full-blooded Indians only 8.4 percent make or exceed the
intelligence quotient of 100; of the three-quarter bloods 16 percent make or ex-
ceed this quotient; of the half bloods 22.83 percent; of the quarter 23.25 percent
make or exceed the intelligence quotient of 100; in the miscellaneous group the
percentage stands at 31-66. Of the whites included in this study 54.19 percent
make or exceed the intelligence quotient of 100 which is the norm for whites.

3. ARE THERE SUBSTANTIAL DIFFERENCES IN THE INTELLIGENCE LEVELS OF THE BOYS AND GIRLS?

Here it should be noticed that Tables I and II answer this question. Table I gives the median intelligence quotient for white children and Table II the median intelligence quotient for all types of Indians.

There does not seem to be any very constant relationship between the median intelligence quotients and the arithmetical means when they are arranged according to sexes. This is probably due to lack of sufficient numbers. The arithmetical mean or average for full blooded boys is 77, girls 78.28; three-quarter blood boys 82.46, girls 82.29; half blood boys 88.1, girls 91.96; quarter blood boys 91., girls 94.71; miscellaneous group boys 100.1, girls 84.75. The white boys included in the study have an arithmetical mean of 99.6, while the white girls have an arithmetical mean of 100.7.

Boys have a wider range of intelligence quotients than girls. Full-blooded Indian boys have a range of 27 to 145, girls have a range of 35 to 131; three-quarter blood boys have a range of 34 to 125, girls 28 to 123; one-half blood boys show a range of 46 to 130, girls show 48 to 150; one-quarter blood boys have a range of 45 to 139, girls 54 to 125; boys of the miscellaneous group show a range of 51 to 150, girls 65 to 128. When the intelligence quotients are arranged in two groups, Indian and white, the range of Indian intelligence quotients is from the lowest at 27 to the highest at 150; the range of white quotients is from the lowest at 53 to the highest at 148. In both groups the highest and the lowest intelligence quotients are held by boys. Note that his larger range for boys agrees with the findings of Book in Indiana and of Colvin and MacPhail in Massachusetts among white high school students. The ranges when intelligence quotients
are arranged according to amount of Indian blood are as follows:

**Table III Score Ranges of Boys and Girls**

<table>
<thead>
<tr>
<th>Group</th>
<th>Cases</th>
<th>Boys</th>
<th>Cases</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full blood Indians</td>
<td>248</td>
<td>27-145</td>
<td>272</td>
<td>35-131</td>
</tr>
<tr>
<td>Three-quarter blood Indians</td>
<td>44</td>
<td>34-125</td>
<td>56</td>
<td>28-123</td>
</tr>
<tr>
<td>Half blood Indians</td>
<td>104</td>
<td>46-130</td>
<td>115</td>
<td>46-150</td>
</tr>
<tr>
<td>Quarter blood Indians</td>
<td>76</td>
<td>45-129</td>
<td>64</td>
<td>54-125</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>30</td>
<td>51-150</td>
<td>64</td>
<td>65-126</td>
</tr>
<tr>
<td>Whites</td>
<td>158</td>
<td>53-148</td>
<td>176</td>
<td>60-134</td>
</tr>
</tbody>
</table>

Here again a statement should be made with respect to the computation of birthdays for it may affect the divergence of intelligence quotients for girls and boys. In some instances the birthdays are unknown so that it was necessary to use the number of years and the approximate median of six months; e.g. a student giving age of ten years and no birthday was figured at ten years and six months. Letters of inquiry sent to ascertain the birthdays met with the response that they were unknown. Birthdays are unknown in only sixteen cases among the whites, nine boys and seven girls. Birthdays are unknown in one hundred ninety-nine cases among the Indians, eighty-five boys and one hundred fourteen girls. The cases where birthdays are unknown, or not given, come almost entirely from the ranks of the retarded. There seems to be a strong tendency toward stolidity and a natural hesitancy about giving any personal information.

**Table IV. Sex Differences in Intelligence Quotients**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Median Quotients</th>
<th>Arithmetical Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
</tr>
<tr>
<td>Full blooded Indians</td>
<td>78.5</td>
<td>78.7</td>
</tr>
<tr>
<td>Three-quarter bloods</td>
<td>84.5</td>
<td>85.5</td>
</tr>
<tr>
<td>One-half bloods</td>
<td>88.3</td>
<td>91.0</td>
</tr>
<tr>
<td>One-quarter bloods</td>
<td>89.5</td>
<td>95.5</td>
</tr>
<tr>
<td></td>
<td>77.5</td>
<td>78.28</td>
</tr>
<tr>
<td></td>
<td>82.46</td>
<td>82.29</td>
</tr>
<tr>
<td></td>
<td>91.0</td>
<td>91.96</td>
</tr>
<tr>
<td></td>
<td>91.0</td>
<td>94.71</td>
</tr>
</tbody>
</table>
When the median intelligence quotients are considered the girls rank higher than the boys in all cases of mixed blood, but in the full blooded Indian group and the white group the boys rank higher than the girls. A possible explanation of this fact may be that the girls of mixed blood seem to show a greater tendency to adapt themselves to white environment than do the boys; perhaps these tests indicate native white intelligence more accurately than they test native Indian intelligence.

When the arithmetical means or averages are figured the girls of the full blooded Indian group rank rather close to the boys and in the white group the girls excell the boys by a little more than one point (1.1). The greatest difference in the average scores comes in the miscellaneous group when the boys exceed the girls by fifteen and twenty-five hundredths (15.25). The median scores are much the better indication of rank but the averages give a little additional information on the distribution of high and low scores.

In the full blood Indian group the number of girls making or exceeding the white normal intelligence quotient of one hundred was two greater than the number of boys; of the quarter blood Indian group the number of girls making or exceeding the score was three greater than the number of boys. Nearly three times as many girls as boys make or exceed the one hundred score in the half blood group compared with exactly three times as many girls as boys in the three-quarter blood group. In the miscellaneous group twice as many boys as girls reach or exceed the normal score. This comparison of scores above one hundred indicates slight sex superiority for girls.

4. DO INDIANS SCORE HIGHER IN TESTS DEALING WITH NATURE AND PRIMITIVE LIFE?

The tests used in this study are tests of general intelligence not tests for
special adaptability. However, it is interesting to note the percent
of Indians who correctly answered the questions that deal more closely with
nature. The one objection made by the teachers in the school tested is
that the tests are for white environment, and environment with which many of
the reservation Indians are as yet unfamiliar. A study that would indicate
the artistic ability of Indians, especially along the lines of drawing
and music, would be exceedingly profitable. In general, grade teachers
seem to accept as a fact the idea that Indians learn to write easily and as
a rule become good penmen. The writing on the tests and questionnaires is
very good in quality. Indian school exhibits always show high attainment in
drawing and sewing.

Five questions were selected from the higher examination as having some
connection with a knowledge of nature. The questions selected are:

1. A fox most resembles a (?)
   1. wolf, 2 goat, 3 pig, 4 tiger, 5 cat

2. Which one of the six statements below tells the meaning of the
   following proverb, "The early bird catches the worm."
   1. Don't do the impossible.
   2. Weeping is bad for the eyes.
   3. Don't worry over troubles before they come.
   4. Early birds like worms best.
   5. Prompt persons often secure advantages over tardy ones.
   6. It is foolish to fret about things we can't help.

3. A contest always has (?)
   1. an umpire, 2 opponents, 3 spectators, 4 applause, 5 victory

4. Which one of the six statements below tells the meaning of the
   following proverb? "The burnt child dreads the fire."
   1. Frivolity flourishes when authority is absent.
   2. Unhappy experiences teach us to be careful.
   3. A thing must be tried before we know its value.
4. A meal is judged by the dessert.

5. Small animals never play in the presence of larger ones.

6. Children suffer more from heat than grown people.

5. Which statement above explains this proverb? "When the cat is away, the mice will play."

With the possible exception of one other question, these five are the only questions in the list of seventy-five that deal even indirectly with the native Indian environment.

The first question of the list is answered correctly in 76 percent of the 51 cases; the second is answered correctly in 63 percent of the cases; the third question is answered correctly in 63 percent of the cases while the fourth question is answered correctly in 67 percent of the cases. The last question is answered correctly by 61 percent of the Indians.

More accurate results could be obtained by testing a larger number of Indians. Numbers are small in high school because of early elimination.
Six questions were selected from the intermediate examination that should come within Indian experience. The questions are as follows:

1. Which one of the five things below does not belong with the others?
   1. potato, 2. turnip, 3. carrot, 4. stone, 5. onion

2. Which one of the five things below is the smallest?
   1. twig, 2. limb, 3. bud, 4. tree, 5. branch

3. A finger is to a hand the same as a toe is to what?
   1. foot, 2. toenail, 3. heel, 4. shoe, 5. knee

4. A boy is to a man as a (?) is to a sheep.
   1. wool, 2. lamb, 3. goat, 4. shepherd, 5. dog.

5. Which of the five things below is most like these three, horse, pigeon, cricket?
   1. stall, 2. saddle, 3. eat, 4. goat, 5. chirp

6. If the words below were rearranged to make a good sentence, with what letter would the last word of the sentence begin? nuts from squirrels trees the gather

The first question of the list is answered correctly by 93.63 percent of the 289 Indians, the second by 72.14 percent, the third by 66.78 percent, the fourth by 43.11 percent, the fifth by 56.19 percent, and the sixth by 46.31 percent.

Test five of the primary examination is a picture sequence test. The first row of pictures shows the story of nest building and the hatching of the young birds; this sequence is numbered correctly in nearly every instance but the statistics are not compiled because definite directions are given by the administrator for this row. The next two rows show the building of a house and the preparing of kindling, respectively, and are well answered. Three of the succeeding rows contain pictures that are entirely outside the range of Indian environment;
the fire engine, the ambulance, and the gas light. Scores are very poor on these rows. The house building sequence is answered correctly by 57.71 percent of the 710 Indians while the preparation of kindling (chopping the tree, sawing the wood, and splitting wood) is answered correctly by 50.31 percent of the Indians.

Test three of the primary examination is a test on picture completion. The hand on which a finger is missing is completed in 91.46 percent of the cases, and in nearly all of the incompletet cases the entire page is left blank. The picture of a gun without a trigger is completed in 56.37 percent of the cases. The picture of a wheel with a missing spoke is completed in 90 percent of the cases. Test four is the mouse maze test. There are ten boxes through which the mouse should pass. Each box through which the path is drawn without bumping into a wall makes a score of one; the perfect score for the page is ten. Forty and thirty-eight hundredths (40.38) percent of the 710 Indians in the primary grades attained a perfect score of ten on the maze test; 59.66 percent attained scores ranging from two to nine. Twenty percent of the pupils completely failed in the maze test. So far as information can be obtained from these tests, the indications are that Indians show their greatest ability in tests dealing with nature and primitive life.

Although Indians make their best scores on the questions dealing with nature and primitive life they about equal the whites on nature questions. They rank somewhat higher than whites in the primary test, about the same in the intermediate test, and somewhat lower than the whites in the higher test. In the higher examination a larger percentage of whites correctly answered each of the first four questions than Indians. The percentage is almost equal for the fifth question. There were 58 cases among whites in high school. Of these whites 94.82 percent answered the first question correctly; 63.79 percent answered the second question correctly; 77.56 percent the third; 79 percent the fourth; 60 percent the fifth. In the intermediate grades Indians
scored higher on questions one, three and six than whites while whites scored higher on questions, two, four, and five. Of the 194 white children 90.74 percent answered the first question correctly; 87.03 percent the second; 64 percent the third; 48.14 percent the fourth; 59.25 percent the fifth; 27.77 percent the sixth. In the primary examination indians score higher than whites on each of the tests dealing with nature or primitive life, except the completion of the drawing of a hand with one finger missing. Of the 86 white cases 97 percent completed the hand; 47.67 percent put the trigger on the gun; 82.55 percent completed the wheel. Notice that 10 percent more indians completed the drawing of the gun than whites. Of the whites 24.09 percent earned a perfect score on the maze test; 45.78 percent attained scores ranging from two to nine. Twenty-nine and seventy two hundredths of the whites failed completely in the maze test. These facts become clear in the following table:

Table V - Comparisons on Questions of Nature and Primitive Life

<table>
<thead>
<tr>
<th>Tests</th>
<th>Cases</th>
<th>Questions 1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Percentages Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indians Higher</td>
<td>51</td>
<td>76</td>
<td>38</td>
<td>63</td>
<td>67</td>
<td>61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whites</td>
<td>58</td>
<td>94</td>
<td>63</td>
<td>77</td>
<td>79</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indians Intermediate</td>
<td>298</td>
<td>93</td>
<td>72</td>
<td>66</td>
<td>43</td>
<td>56</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Whites</td>
<td>194</td>
<td>90</td>
<td>87</td>
<td>64</td>
<td>56</td>
<td>59</td>
<td>27</td>
<td></td>
</tr>
</tbody>
</table>

Hand | Gun | Wheel | Maze Scores

| 10 | 2-9 | 0

Indians Primary | 710 | 91 | 56 | 90 | 40 | 39 | 20|
| Whites        | 166 | 97 | 47 | 82 | 24 | 45 | 29|

5. ARE INDIANS GREATLY RETARDED IN SCHOOL?

In dealing with this question the distribution shown in Table VII is used. This chart used in Table VII is the same as the one used by the Montana State Department of Education for age-grade distribution. Normal age for each grade is included between the heavy black lines. This three year distribution was used to make comparisons with pupils in the public schools.
of Montana possible.

Indians are greatly retarded in school work. Of the entire number of Indians studied 48.85 percent fall within the normal age-grade group while 49.33 percent fall into the ranks of the retarded. Only 1.80 percent of the cases are accelerated and in no case is the acceleration greater than two years. The greatest number of cases of retardation, comes in the first year below the normal age-grade level, but the retardation in the second and third years below the level is great. The maximum extent of retardation, in this study, is eight years below the normal group.

Table VI - Amount of Acceleration, Retardation, and Normality

Among Indians in Age-Grade Distribution

<table>
<thead>
<tr>
<th>Rank</th>
<th>Number of cases</th>
<th>Percentage of total number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accelerated</td>
<td>31</td>
<td>1.60</td>
</tr>
<tr>
<td>Normal</td>
<td>501</td>
<td>48.85</td>
</tr>
<tr>
<td>Retarded (total)</td>
<td>517</td>
<td>49.33</td>
</tr>
<tr>
<td>Retarded one year</td>
<td>172</td>
<td>33.25</td>
</tr>
<tr>
<td>Retarded two years</td>
<td>131</td>
<td>25.33</td>
</tr>
<tr>
<td>Retarded three years</td>
<td>87</td>
<td>16.82</td>
</tr>
<tr>
<td>Retarded four years or more</td>
<td>127</td>
<td>24.56</td>
</tr>
</tbody>
</table>

The outstanding fact that 32.59 percent of the Indian children in the first grade are nine years old or older accounts to some extent for the retardation in the later grades. Retardation increases regularly up to and including the fifth grade; it is high in the sixth and seventh grades but gradually decreases through the eighth grade due to the great amount of elimination. Indians in high school show little retardation, but the number in high school is very small comparatively. Indians are greatly retarded in the grades but part of this retardation is due to the poor enforcement of compulsory education, especially in regard to school entrance.
6. HOW LONG DO INDIANS REMAIN IN SCHOOL?

The fundamental information for this question comes directly from Table VII. When the number of Indian boys and the number of Indians girls in each of the grammar grades is noted the fact is outstanding that the number of boys in each grade, with the exception of the third and sixth, is smaller than the number of girls. The total number of girls enrolled in the grammar grades exceeds the total number of boys by 12.76 percent. According to the Biennial Report of the Superintendent of Public Instruction of Montana the number of boys enrolled in the public schools of Montana slightly exceeds the number of girls. Boys make up 51.4 percent of the enrollment of the day schools of Montana with the girls making up the remaining 48.6 percent. The greater number of Indian girls in school than Indian boys seems to indicate that delinquency is a greater factor with Indian boys than with Indian girls. Part of this delinquency may be due to the fact that Indians are resentful toward criticism and are easily discouraged in school work.

Among Indians there is a fall in numbers between the first and second grades and an unaccountable gain in the numbers of pupils in the third grade over those in the second grade. A large fall in numbers comes between the fourth and fifth grades. From the fourth grade through the eighth the numbers gradually decrease. Only 2.47 percent of the Indians studied were found in the eighth grade. Because the tests were given late in the spring it is probable that practically all of the Indians reported in the eighth grade would graduate. The gradual decrease in numbers of Indians continues through the high school and the high school seniors number only .85 percent of the total number of Indians studied. If this percentage were to remain constant during the next 11 years, however, while all those included in this study were moving up through the grades, approximately 10 percent of the total number studied will graduate from the high school. Practically all of the Indian training schools, government or mission, restrict their work to the first eight grades. When an Indian does go on to high school he usually either goes out of the state to
a strictly Indian school or goes to the public high school. It is very
difficult to locate and test these scattered cases in the high schools
of the state.

When the statistics of the state biennial report (Montana) are compared
with the results from the Indian study, it is interesting to note that the
points of greatest fall in numbers come at almost identically the same places.
In both cases a great decrease in numbers comes between the fourth and fifth
grades. This decided drop is probably due to the fact that at this point the
dull child reaches school work that is entirely beyond his comprehension. In
cases where the pupil is already retarded he may continue to "mark time" until
he will no longer be within the age limits of the compulsory education law.
The proportion of the fall is greater for Indians than for whites between
the fourth and fifth grades. A comparison of the decided drop that comes
between the sixth and seventh grades in this study shows a greater proportional
drop for the Indians, but the number of Indians is too small for the com­
pilation of standard statistical data.

This study shows that approximately 66 percent of the Indians who graduate
from the eighth grade go on to high school. The average Indian drops out of
school between the fourth and eighth grades, but if he completes his eighth
grade work the chances are six to ten that he will at least begin high school
work. The Montana biennial report shows that sixty percent of white pupils
who complete the eighth grade go on to high school. There is a gradual de­
crease in numbers for each year of high school work and only .85 percent of
the Indians studied graduated from high school in the spring of 1926. The
Montana biennial report shows 1.41 percent of the total enrollment in the twelfth
grade. About twice as many whites in proportion to Indians graduate from
high school.

Reports of the Commissioner of Education show that about thirty pupils out
of every hundred who enroll in the grade schools enter high school, and that
about forty-five out of every hundred who enter high school complete a four

In comparison with Montana, the Indians do not show as large a drop between the eighth grade and high school. This is undoubtedly due to the fact that Indians usually drop out before graduating from the eighth grade. When the intelligence quotients of Indians are studied the great retardation and elimination show is expected because many Indians are mentally incapable of doing effective upper grammar grade school work as it is administered in the white schools.

Elimination is greater for Indians than for whites between the grades four to eight, but there is a greater tendency for the Indian who does graduate from the eighth grade to go on to high school than is shown by whites. Only 2.47 percent of the Indians studied graduated from the eighth grade in 1926. Only .85 percent of the total number of Indians studied graduated from high school in 1926. The Commissioner of Education gives for whites: 30 percent of those who enroll in the common school enter high school.

7: DO THOSE INDIANS WHO ARE IN ATTENDANCE AT "WHITE" SCHOOLS SCORE HIGHER THAN THOSE IN ATTENDANCE AT INDIAN SCHOOLS?

This question was suggested indirectly by the agitation on the part of a few reservation superintendents to send all Indians to the public school and gradually do away with the government training schools. Most of these schools are boarding schools, and one of the leading arguments in favor of their maintenance is that the pupil has continual supervision in habit formation. It is difficult for the public school to instill correct habits when the child is in school only six hours of the twenty-four and often returns to very poor home environment. Nearly sixty-two percent of the Indians studied are in attendance at Indian schools.

When all Indians are included in the study, an Indian being considered as
any person having any amount of Indian blood, the number in attendance at schools where white pupils are in attendance rank higher than the Indians in attendance at Indian schools. However, there is a larger number of full blood Indians in attendance at Indian schools than at "white" schools. Under question two of this study it was found that Indians of mixed blood score higher than full blood Indians. Therefore, the including of more full blooded Indians in the Indian school group would throw the median intelligence quotient slightly in favor of the "white" school. In order to at least partially overcome this difficulty the intelligence quotients of 248 Indians of mixed blood who are in attendance at Indian schools are compared with the intelligence quotient of 282 Indians of mixed blood in attendance at "white" schools. When the median intelligence quotients of these two groups of Indians of mixed blood are compared the Indians in "white" schools rank a fraction of one point ahead of the Indians in Indian schools.

All Indians including full bloods, from Indian schools have a Median intelligence quotient of 83.7 while all Indians from "white" schools show a median intelligence quotient of 87.5. The average intelligence quotient in both groups are very close to the median quotient. The average for pupils in Indian schools is 83.74 while the average for Indians in "white" schools is 85.82. The Indians of mixed blood in Indian schools have a median intelligence quotient of 90.2; Indians of mixed blood in "white" schools have a median intelligence quotient of 91.5. The average intelligence quotients in these two groups of mixed bloods are very close to the medians. Indians of mixed blood in Indian schools show an average intelligence quotient of 89.54 (median 90.2); Indians of mixed blood in "white" schools show an average intelligence quotient of 91.07 (median 91.5).

Table VIII - Ratings of Indians in Indian Schools and in White Schools.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Cases</th>
<th>Median intelligence quotient</th>
<th>Average intelligence quotient</th>
</tr>
</thead>
</table>
These returns show that there is a tendency for Indians in "white" schools to rank slightly higher in intelligence quotients than Indians in Indian schools.

8. WHAT PROPORTION OF INDIANS IN THE UPPER GRADES AND HIGH SCHOOLS OF MONTANA PLAN TO CONTINUE THEIR EDUCATION AND HOW IS THIS DESIRE RELATED TO THE INTELLIGENCE QUOTIENTS?

Pupils in the intermediate and grammar grades and high school were asked to designate on the questionnaire whether or not they intend to continue their education. This information was tabulated and the percentages figured. Those who said they planned to go on to school constitute 79.66 percent of the 303 cases; 17.49 percent definitely state that they are not going to continue their educations; 2.64 percent of the entire group left the space for education blank. The results from question six indicate that only a small percentage of those who plan to continue their education actually do continue in school beyond the eighth grade.

Table IX - Proportion of Indians Planning to Continue Their Education

<table>
<thead>
<tr>
<th>Education</th>
<th>Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indians who plan to continue school</td>
<td>242</td>
<td>79.66</td>
</tr>
<tr>
<td>Indians who intend to stop school</td>
<td>53</td>
<td>17.49</td>
</tr>
<tr>
<td>Indians who left question blank</td>
<td>8</td>
<td>2.64</td>
</tr>
</tbody>
</table>

The scores of both Indians and whites were arranged to ascertain whether those pupils who plan to continue their education show a higher median intelligence quotient than those who do not plan to continue. Only the pupils in the upper grades and high school were asked the question concerning school because it was thought that answers from pupils in the primary grades would not be indicative. The Indians (persons who have any amount of Indian blood) who plan
on continuing in school show a median intelligence quotient of 87, while those who do not plan to continue show a median intelligence quotient of 75. Of the 236 white pupils included in this study grades 5-12, those who plan to continue have a median intelligence quotient of 100; the white pupils who do not plan to continue in school work have a median intelligence quotient of 94.5.

Table X Comparison of Those Intending to Continue Their Education and Those not so Intending

<table>
<thead>
<tr>
<th>Groups</th>
<th>Median I.Q.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indians</td>
<td></td>
</tr>
<tr>
<td>Continuing their education</td>
<td>87.</td>
</tr>
<tr>
<td>Not continuing their education</td>
<td>75.</td>
</tr>
<tr>
<td>Whites</td>
<td></td>
</tr>
<tr>
<td>Continuing their education</td>
<td>100.</td>
</tr>
<tr>
<td>Not continuing their education</td>
<td>94.5</td>
</tr>
</tbody>
</table>

According to this data nearly two-thirds of the Indians in the upper grades and high schools of Montana said they planned to continue their education. Colvin and MacPhail found that two-thirds of the seniors in the high schools of Massachusetts plan to continue their education (2, Intelligence of Seniors in the High Schools of Massachusetts, Bureau of Education Bulletin, 1924; No. 9; p. 7). It would seem that the proportion for Indians is not too large, because this study was extended through high school and the intermediate grades. Among both Indians and whites those pupils not continuing their education rank much lower in median intelligence quotient than those planning to continue their education. Indians continuing their education show a much lower median than whites continuing their education; Indians not continuing their education show a much lower median than whites not continuing their education. As a matter of fact, as shown by the age grade distribution table, there is a very high percentage of unreliability in the statements of the Indians with respect to their future educational plans. But when it is remembered
that this data was secured from pupils in grades five to twelve, inclusive, it will be evident that the unreliability is high in grades 5, 6, and 7. The same table shows a high degree of reliability for grade 8.

9. WHAT SPECIFIC PLANS FOR A CAREER HAVE THE PUPILS STUDIED AND WHAT ARE THE COMPARATIVE RANKINGS OF GROUPS MAKING EACH CHOICE?

A chart was made showing the choice of occupations made by the pupils studied; percentages were figured from this chart. The group of 159 Indian girls in grades five to twelve inclusive, was studied first. The miscellaneous group ranks first in numbers with 18 percent. Sewing is the most common work listed under this head; acting and writing are also common. Of the Indian girls 17.58 percent intend to do housework. Stenography claims 11.31 percent and teaching 16.97 percent. The space for occupation was left blank in 9.16 percent of the cases and 8.35 percent chose nursing. The predominance of the preference for housework is probably due to the emphasis that is placed upon this phase of the training in all training schools.

The majority of 138 Indian boys in grades five to twelve, inclusive, intend to be farmers. This group contains 48.88 percent of the total number of Indian boys; the miscellaneous group has 19.56 percent of the entire number of boys. Engineering comes next with 13.04 percent although the intelligence quotients of Indians and their early elimination from school would indicate that very few will be engineers. Those who are undecided as to occupation form a group containing 12.31 percent of the cases. The lower part of the questionnaire was left blank in 5.35 percent of the cases and the space for occupations was left blank in 4.05 percent. When both boys and girls are considered in the Indian group, approximately 15 percent of the entire number are undecided as to occupation.

Occupational choices of 222 whites, grades five to twelve, inclusive, were segregated in the same manner as were the choices of Indians. Teach-
ing is the choice of the largest number of the 120 white girls; 44.64 percent of the number fall in this group. The next group in size contains those who are undecided as to occupation, 21.30 percent of the number. Nursing and stenography are the choices of the equal numbers of girls, 6.80 percent of the cases. Miscellaneous occupations are chosen by 8 percent of the girls. The space for occupation is left blank by 7.14 percent of the number and the group for housework is smallest of all with 1.3 percent.

White boys show a much greater tendency toward a wide range of occupational choice than do Indian boys. For 102 white boys, grades five to twelve inclusive, 32.47 percent have chosen miscellaneous occupations. This group contains a few lawyers, some doctors, bakers, barbers, aviators, mechanics, etc. A group with 26.49 percent is undecided as to occupation. Farming claims 16.78 percent and engineering 13.84 percent. The last two groups are equal in numbers, those choosing teaching and those who left the space for occupation blank. Each of these groups contain 5.02 percent of the number of cases of white boys.

When the two races are compared a few outstanding differences are apparent. The favorite occupation of Indian girls, housework, is the least frequently named by white girls. The training for home life given in Indian schools seems to be functioning in this choice. More white girls than Indians wish to become teachers and more Indian girls than white girls wish to become stenographers. Percentages choosing nursing from both races are more nearly equal than for any other occupation. Farming, by far the most popular of all occupations for Indian boys, attracts only 16.78 percent of the white boys. The percentage of Indian boys choosing engineering and the percentage of white boys making the same choice are nearly equal.

Table XI. Occupational Choices of Indians and Whites

<table>
<thead>
<tr>
<th>Groups</th>
<th>Percentages</th>
<th>Groups</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indians (Total Cases)</td>
<td></td>
<td>Whites (Total Cases)</td>
<td></td>
</tr>
<tr>
<td>Girls (Number of cases 159)</td>
<td></td>
<td>Girls (Number of cases 120)</td>
<td></td>
</tr>
</tbody>
</table>
Notice that the number of cases in most instances is very small. Larger numbers, proportionately, of whites than Indians are undecided as to occupation. Perhaps this is because of the wider range of occupations which seem to be open to white pupils. In these choices of occupations for both Indians and whites there is a great possibility of unreliability due to the immaturity of pupils.

Median intelligence quotients were compiled in order to compare the rank of pupils making the various occupational choices. The median for Indians is highest for stenographers at 97.5; engineers rank second with a median of 91.5. The remaining groups of Indians arranged in order of rank according to median intelligence quotient are as follows: teachers, median 90.16; miscellaneous, median 82.5; undecided, median 81.5; farmers, median 77; housekeepers, median 71. The median intelligence quotients for the occupations among whites may not be standard for the number of whites included is small. The highest group median for whites is at 108 for engineers; nurses come next with a median of 105.5. The remaining groups
of whites arranged in order of rank according to median intelligence quotient are: teachers 103.5; undecided, median 100.5; stenographers, median 99; miscellaneous, median 99; farmers, median 94. It is interesting to note that only one group of whites, those choosing farming (median intelligence quotient 94), ranks lower than the highest group of Indians, those choosing stenography (median intelligence quotient 97.5).

Colvin and MacPhail in the study of intelligence of Seniors in the High Schools of Massachusetts (2, Bureau of Education Bulletin, 1924, No. 9; p. 29) found that homemakers ranked low in median score compared with the other choices. This agrees with the findings of our study. But the Massachusetts study found farmers ranking comparatively high; this study finds farming to rank low in median when compared with the other occupations. At least part of this difference may be because of the very different conceptions of what farming is in Massachusetts and what is is in Montana, especially among the Indians. With only three exceptions those who expect to drop out of school before the eighth grade, or who have left schooling as indefinite, have chosen farming or homemaking as the occupations, if any is chosen. All of these scores are low, usually between fifty and seventy.

Table XII. Relation of Occupational Choice to Median Intelligence Quotient.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Median Intelligence Quotients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indians</td>
<td></td>
</tr>
<tr>
<td>(Total cases 297)</td>
<td></td>
</tr>
<tr>
<td>Stenographers</td>
<td>97.5</td>
</tr>
<tr>
<td>Engineers</td>
<td>91.5</td>
</tr>
<tr>
<td>Teachers</td>
<td>90.2</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>82.5</td>
</tr>
<tr>
<td>Undecided</td>
<td>81.5</td>
</tr>
<tr>
<td>Farmers</td>
<td>77.</td>
</tr>
<tr>
<td>Housekeepers</td>
<td>71.</td>
</tr>
</tbody>
</table>
10. WHAT UPPER GRADE AND HIGH SCHOOL SUBJECTS ARE LIKED BEST AND
LEAST, AND HOW ARE INTELLIGENCE QUOTIENTS RELATED TO THESE
PREFERENCES?

This question deals only with pupils in the seventh and eighth grades
and high school. Under question five it was found that elimination is
very high for Indians before they reach the seventh grade. Therefore, the
number of whites in grades seven to twelve, inclusive, is larger than the
number of Indians: The choices of Indians will be given first followed by
a paragraph giving the choices of whites; comparisons will then be made
between the two races.

Mathematics is the favorite subject for Indians while history places
second and social sciences third. Mathematics exceeds history by only
six cases (45 and 39), therefore, practically an equal number of Indians
show preference for mathematics and history. Approximately one-fifth of
the two hundred thirty choices were for mathematics, one-fifth for history,
and less than one-fifth for social sciences. In answer to the question,
"What two subjects do you like best in school?", some one of the com-
binations of mathematics, history, and social science was given most
frequently. One-seventh of the choices, are for English or grammar and a
little more than one-eighth are for reading. In order of number of choices
the remaining ranks are sixth - spelling, seventh - commercial subjects,
eighth - geography.
The five subjects that were most frequently named as the best liked also constitute the five most disliked subjects, with the exception of geography which rises from seventh place in the best like group to fourth in the least liked group. The order of frequency, however, in these choices does not remain the same. In answer to the question, "What two subjects do you like least in high school?" nearly one-third of the Indians named mathematics; one-fifth history; one-fifth listed English and less than one-fifth geography; about one-tenth named social sciences.

When one hundred sixty-three whites are studied mathematics ranks first as best liked subject in choice and history second as was the case with Indians, but after these two subjects are considered the frequency of choice differs. The same number of whites chose English as history; among Indians this choice fell to social sciences, in the list of best liked subjects for whites foreign languages rank fourth. Foreign languages were practically ignored by Indians, but this may be due to the fact that the vocational subjects are emphasized in Indian schools. The remaining ranks are: fifth sciences; sixth and seventh commercial studies and social sciences. It is interesting to note that very small numbers of whites mention reading; that commercial subjects are mentioned as favorites by only a small number of Indians while many Indians gave stenography as occupational choice; and that social sciences rank seventh in best like subjects for whites and third for Indians. The proportions of whites that made each choice are as follows:

(best liked subject) mathematics one-fourth; history one-sixth; English one-sixth; foreign languages nearly one-tenth; science nearly one-tenth; commercial studies a little more than one-twelfth.

The seven subjects most frequently named by whites as best liked also constitute the seven most disliked subjects; the order of frequency however, does not remain the same. A few more than one-fifth of the pupils attach the greatest dislike to mathematics; almost one-fifth dis-
like English. This far the best liked and least liked subjects for
whites compare closely. Nearly one-fifth dislike social sciences; one-
sixth dislike history; one-ninth dislike foreign languages; one-twenty-fourth
do not like commercial subjects. Science is listed as disliked by very
small numbers.

When whites and Indians are compared mathematics, history, and English
are found to rank high in frequency, both as liked and disliked. After
these subjects have been considered the Indians choose what are usually
considered the "easy" subjects (spelling and reading) while the whites
select the sciences, practical and social.

Comparisons based upon median intelligence quotients show that whites
choosing languages and social sciences rank high; rankings for Indians are
the same except that those choosing history are higher than those choosing
social sciences. These results agree closely with the findings of Book
in Indiana (The Intelligence of High School Seniors) and Colvin and
MacPhail in Massachusetts.

(2 Intelligence of Seniors in the High Schools of Massachusetts).
In most cases those liking a subject best appear to be superior to those
liking the same subject least. An exception to this order appears when
those disliking commercial studies score higher than those liking the
same subjects. The number of cases when the choices come near the bottom
of the list is too small to make the findings standard, but they seem to
be somewhat indicative. The direct relation of intelligence quotient to
subject choice is shown in Table XIII.

Table XIII. Relation of Intelligence Quotient Median to Subject Choices

<table>
<thead>
<tr>
<th>Subject</th>
<th>Liked I.Q. median</th>
<th>Disliked I.Q. median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indians</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The fact that Indians in the upper grades and high school compose a highly selected group should be kept in mind to account for the comparatively high intelligence quotient medians given for Indians in Table XIII. A comparison of these medians with those found under Question 2 shows plainly that only the superior Indians ever reach the seventh grade.

II. ARE INDIANS GREATLY RETARDED AS TO MENTAL AGE? AND WHAT RELATION EXISTS BETWEEN APPROXIMATE ILEDIAN INTELLIGENCE QUOTIENTS AND FORMAL EDUCATION?

The intelligence quotients are arranged as shown in Table XIII for the sake of direct comparison with the findings of Thomas R. Garth, assisted by T. J. Serafini and Dewey Dutton, (The Intelligence of Full Blood Indians; Journal of Applied Psychology; December 1925). Indians have not, age for age, the educational equivalent of the white subjects. Therefore the Indians in a grade are too old to be compared with the
whites in the same grade, but some idea of the relationship may be gained.

Garth finds a median intelligence quotient of sixty-nine for some of the full blood Indian children of the Pueblo, Navajo, and Apache tribes. I find a median intelligence quotient of seventy-seven for full blooded Indian children of Montana. When Garth finds the mental age he gives an intelligence quotient of fifty as the lower limit for the mental age of eight and one-half years. I have used, according to the Otis tests, the Binet mental age scale with the intelligence quotient of sixty-three as the lower limit for the mental age of eight and one-half years. When the mental ages are figured on this basis, the results of the two investigations are comparable and almost identical.

Garth says, "The Indian schools visited were United States Schools located respectively at Chilocco, Oklahoma and Albuquerque, Sante Fe and Skiprock in New Mexico." Probable reasons why the Indians of Montana should rank higher than the Indians of Oklahoma and New Mexico are here given. First, most of the Indians of Montana are not living in so "uncivilized" an environment as that described by Garth. Second, many of the Indians of Montana are in schools where white pupils act as "pace setters". Third, some of the Montana pupils tested belong to the second and third generation of educated Indians.

When the results as shown in Table XIII are compared with those in Table VII and Graph 2 we find that mental retardation for each grade will account for much of the academic retardation. A greater number of Indians are accelerated, when mental age is considered, than are retarded; that is, they are accelerated in the school grades beyond what is justified by their mental age. "An IQ of seventy-five is considered about the minimum essential for appreciable achievement in school work; many of that degree of intelligence fail almost entirely and, at best, progress is slow and soon halted. Pupils classed by teachers as "Very dull" and "very slow" will be found to have IQ's between seventy and eighty-five." (4 Gates; Psychology for Students of Education; p. 436).
A definite break occurs between grade three and grade four in the regular advancement of median intelligence quotient according to grade. The standard norms given for computing the intelligence quotients in the first three grades seem to be rather low, which would throw the intelligence quotients a trifle high. The conclusion that standard norms are probably a trifle high was reached because more than fifty per cent of the whites in the first three grades attained an intelligence quotient above 100. The primary tests used in the first three grades are chiefly picture completion and following of directions; Indians always do manual work better than pure reasoning. Therefore, the intelligence quotients for grades one-two- and three might be expected to be higher than those for the succeeding grades.

With each succeeding grade beyond the fourth there is a decrease in the number of pupils with a mental age of eight and one-half years or less. In the fourth there are forty Indians with mental ages below eight and a half years. In the fifth grade there are twenty-nine, in the sixth grade fourteen, and in the seventh none. It will be seen on examining Table XIII again that there is a steady rise in the median IQ in going from grade to grade beyond the third. The fourth grade shows a median IQ of 76; the fifth grade 79; the sixth grade 79; the seventh grade 84. The rise continues through high school but the numbers are very small. These findings indicate that only the more intelligent Indians feel a disposition to stay in school and that there is a constant tendency for IQ's to increase with education. These results are identical with those found in Oklahoma and New Mexico.

Table XIII. Approximate IQ's for Indians in Separate Grades.

<table>
<thead>
<tr>
<th>Grade</th>
<th>IQ's</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>One Two Three Four Five Six Seven Eight Nine Ten Eleven Twelve</td>
</tr>
<tr>
<td>Above 130</td>
<td>7   2</td>
</tr>
<tr>
<td>125-129</td>
<td>2   2</td>
</tr>
<tr>
<td>120-124</td>
<td>3   3</td>
</tr>
<tr>
<td>IQ's</td>
<td>One</td>
</tr>
<tr>
<td>------------</td>
<td>-----</td>
</tr>
<tr>
<td>115-119</td>
<td>4</td>
</tr>
<tr>
<td>110-114</td>
<td>4</td>
</tr>
<tr>
<td>105-109</td>
<td>11</td>
</tr>
<tr>
<td>100-104</td>
<td>29</td>
</tr>
<tr>
<td>95-99</td>
<td>22</td>
</tr>
<tr>
<td>90-94</td>
<td>26</td>
</tr>
<tr>
<td>85-89</td>
<td>24</td>
</tr>
<tr>
<td>80-84</td>
<td>11</td>
</tr>
<tr>
<td>75-79</td>
<td>26</td>
</tr>
<tr>
<td>70-74</td>
<td>21</td>
</tr>
<tr>
<td>65-69</td>
<td>12</td>
</tr>
<tr>
<td>60-64</td>
<td>1</td>
</tr>
<tr>
<td>55-59</td>
<td>9</td>
</tr>
<tr>
<td>50-54</td>
<td>6</td>
</tr>
<tr>
<td>Below 50</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>230</td>
</tr>
</tbody>
</table>

**Median IQ**

|       | 87 | 65 | 87 | 76 | 79 | 79 | 84 |

12. **DO THE VARIOUS INDIAN TRIBES DIFFER FROM ONE ANOTHER IN MEDIAN INTELLIGENCE QUOTIENT?**

When the intelligence quotients are arranged according to the tribes to which the Indians belong it is noticed that the tribes differ in the median intelligence quotient. Assiniboin-Sioux rank first with a median intelligence quotient of 87.5; Yankton-Sioux rank second with a median intelligence quotient of 87; Blackfeet rank third with a median quotient of 86.3. The Assiniboin-Grose-Ventre place fourth with a median intelligence quotient of 83.91. Cree-Chippeways occupy sixth place with 82.5 while Grows rank seventh with a median quotient of 77. These medians and the range of intelligence quotients for each group are shown by Graph 2.
There are many obstacles to a satisfactory investigation in this field. It is impossible to disregard or overcome, at present, the factor of social status which, between the average white and the average Indian, is different, qualitatively and quantitatively. One needs only to visit the Indian in his home or to see him in his community life to be convinced of the meagerness of preparation for the ways and customs of white civilization. Indian heredity and social environment instill straight forwardness, courage and endurance—characteristics we consider fundamentally Indian—but intelligence tests do not measure these traits. Indians are not usually familiar with ambulances, fire engines, teddy bears, or cathedral windows. But a knowledge about such commonplace things and their significance in civilization is pre-supposed in those who are to pass satisfactorily the white man's intelligence tests.

These Indians may not represent strictly a random sampling. An attempt was made to give tests in all schools in Montana where any number of Indians were enrolled. Several school principals entirely ignored the letter of inquiry. The schools in which the tests were given would, therefore, represent the more progressive type of school. Because of the handicaps mentioned above we cannot take these results as final measures of the intelligence of Indian children. However, briefly, we may conclude as follows:

1. IQ's are lower for Indians than for whites. The median intelligence quotient for Indians is lower than the median intelligence quotient for whites. In determining this question, any person with any amount of Indian blood is considered as an Indian.

2. Full-blooded Indians show lower intelligence quotients than Indians of mixed blood. The median intelligence quotient increases in inverse proportion to the amount of Indian blood. The median intelligence quotient for full-
36

blooded Indians is approximately 77.

3. No substantial differences are indicated between the intelligence levels of the boys and girls studied, although, girls of mixed blood rank a trifle higher than boys in median intelligence quotients. Boys have a wider range of intelligence quotients than girls.

4. Indians in lower school grades score definitely higher in tests dealing with nature and primitive life. The Indians are at their best in this field.

5. Nearly 50 per cent of the Indians are retarded academically according to age-grade levels. The greatest relative amount of retardation and elimination occurs in the first five grades.

6. Elimination is greater for Indians than for whites between grades four and eight, but there is a greater tendency for the Indian who does graduate from the eighth grade to go on to high school. Only 2.47 per cent of the Indians studied were in the eighth grade in the spring of 1926. Eighty-five one-hundredths per cent were in the 12th grade in the spring of 1926. (The number in high school is so small that these results should not be taken as final.) If this rate were maintained for the next eleven years about 10 per cent of the total group studied would graduate from high school.

7. Indians in attendance at "white" schools rank 4 points higher because of nature of tests in median intelligence quotients than Indians in attendance at Indian schools. The larger number of full-blooded Indians in attendance at Indian schools would shift the IQ in favor of the "white" school. However, Indians of mixed blood at "White" schools rank 1.3 point higher in median intelligence quotients than Indians of mixed blood in attendance at Indian schools.

8. In the upper grades and high schools, 79.86 per cent of the Indians plan
to continue their education. Only a small percentage of these will probably
go on to school as was shown under question six. The Indians not planning
to continue their education rank 12 points lower than the Indians planning to
continue in school, while whites not continuing rank 5.5 points lower than
those continuing.

9. Housework and Farming are the most frequent occupational choices of Indians.
Of the Indian choices the stenographers and engineers rank highest in median
intelligence quotient and the farmers and housekeepers lowest. The highest
median for Indians is 3.5 points higher than the lowest white median when the
intelligence quotients are arranged according to occupational choices. It is
probable that those choices listed as engineering possess little or no
reliability.

10. Mathematics, history and social science are the school subjects best liked
by Indians. Mathematics and history are also named most frequently as least
liked subjects. Choices for whites are the same except that social science
displaces mathematics as least liked. In most cases those liking a subject
best appear to be superior to those liking the same subject least. An ex-
ception to this occurs when whites disliking commercial studies score higher
than those liking the same subjects.

11. Many of the Indians are more advanced in their school grade than their
intelligence quotients would warrant. A greater number of Indians are ac-
celerated, when mental age is considered, than are retarded. Mental retardation
will account for much of the academic retardation. Only the more intelligent
Indians stay in school and there is a constant tendency for intelligence
quotients to increase with advance in education. This is without doubt due
to the elimination of the incompetent.

12. The various Indian tribes show rather marked differences in median
intelligence quotients.
BIBLIOGRAPHY


APPENDIX.

Questionnaires Giving Data about Pupils

Grades One to Four Inclusive

This questionnaire is to be filled out by teachers only.

1. Name of student ___________________ Boy or Girl ______________

2. Name of school ___________________ Post Office Address __________

3. Age of this student ______________ His last birthday ____________

4. In what grade is this student? _________________________________

5. How many years or fractions of years has he been in school, altogether?

6. How many different schools has he attended so far? ______________

7. How old was this pupil when he started to school? ________________

8. What is the total absence standing against his entire record, if known? How many days has he missed during this school year?

9. State chief cause of absence _________________________________

10. Was lack of interest, truancy, or delinquency a factor? __________

11. To what race does this child belong? ("If white write "W" in blank following; if full-blooded Indian write "I" in the blank space; if one-half blood or one-quarter blood Indian, write "I 1/2" or "I 1/4" as the case may be.) _________________________________

12. Height (with shoes on) _________________________________

13. Weight (with coat on but without overcoat or cloak) ____________

14. Date when intelligence test is given __________________________

Name of teacher or person who filled out questionnaire:
Questionnaire for Students in Fifth and Sixth Grades

Part I (To be filled out by pupil)

1. Name of school __________________________ Post Office _______________________
2. Print your name ___________________ Grade _______ Boy or girl ________
3. How old are you? ______ Give date of your last birthday ________________
4. Do you plan to graduate from the eighth grade? ________________
5. Do you plan to go to high school? ____________________________________
6. What work do you plan to do when you are through school? ____________
7. Where were you born? ______________________________________________
8. What is your father's occupation? ______________________________________
9. How tall are you? (with shoes on) ________________________________
10. How much do you weigh? (with coat, without overcoat) _________________
11. How many different schools have you attended so far? ________________
12. How old were you when you started to school? _______________________

Part II (To be filled out by teacher or person giving test)

1. If the pupils in the grade to which this pupil belongs were rated in point of merit as A, B, C, D, E, meaning excellent, good, fair, poor, and failure, respectively, how would you rank this pupil? __________
2. What is the total number of days absence standing against this student's entire school record, if known? ___________________________________
3. How many days has he missed during this school year? ________________
4. What was the chief cause of that absence, if known? ________________
5. Was lack of interest, truancy, or delinquency, a factor? ________________
6. If this student has taken any other intelligence test, please give the name of test and score __________________________________________
7. Race (Do not omit this question. See letter of instruction for information to be given here.) ________________________________
8. Date when intelligence test is given ________________________________

Name of teacher or person who filled out questionnaire: ____________________________

Post Office: ________________________________
Questionnaire for Students in the Seventh and Eighth Grades

Part I (To be filled out by the pupil)

1. Name of school_________________________ Grade____________________

2. Print your name_________________________ Boy or girl__________________

3. How old are you? Date of your last birthday__________________________

4. What two subjects do you like best in school?_________________________

5. What two subjects do you like least in school?_________________________

6. On or about what date do you expect to graduate from the eighth grade?__________________________

7. Do you plan to attend high school or some other school after you complete the work of the eighth grade? What school?__________________________

8. Do you expect to go to college or university?__________________________

9. Do you plan to quit school after completing eighth grade?__________________________

10. If so, what work do you plan to do?__________________________

11. What life occupation is most attractive to you?__________________________

12. What life occupation have you decided to follow?__________________________

13. If undecided, state so here__________________________

14. If there is anything to prevent you from following the occupation of your choice, what is it?__________________________

15. In what country or state were you born?__________________________

16. In what country or state was your father born?__________________________

17. In what country or state was your mother born?__________________________

18. What is your father's occupation?__________________________

19. Give your height (with shoes on)__________________________

20. Give your weight (fully dressed without overcoat)__________________________

21. How many different elementary schools have you attended so far?____ Name them__________________________

Part II (To be filled out by principal)

1. In what academic fifth of his class is this pupil?__________________________

2. Assuming that this student remains in school until he completes the work of the eighth grade, how many years and fractions of years will this student have spent in the elementary school?__________________________

3. How many days of absence stand against his entire elementary school career, if known?__________________________

4. What was the chief cause of that absence, if known?__________________________

5. Was lack of interest, truancy, or delinquency a factor?__________________________

6. If this student has taken any other intelligence test please give name of test and score__________________________
Questionnaire for High School Juniors, Sophomores, and Freshmen

Part I (To be filled out by the student)

1. Name of school________________________Junior, Sophomore, Freshman
   (Check correct one)
2. Print your name ________________________Post Office ____________________
3. What is your present age in years? ________Months? _______________
4. What two subjects do you like best in high school? ____________________
5. What two subjects do you like least in high school? _________________
6. What course are you taking in high school? ________________________
7. Do you plan to remain in high school until you graduate? ______________
8. If not, what kind of work do you plan to do when you withdraw? ________
9. Do you plan to go to work immediately after you graduate from high school?__________Boy or girl
10. If so, what kind of work do you plan to do? _________________________
11. Do you plan to go to some other school or college after you graduate? ______
12. If so, name the school, college, or university ________________________
13. Give date when you expect to graduate from high school ________________
14. What do you plan to follow for a life occupation, ultimately? ___________
15. Does anything prevent you from carrying out this plan? _________________
16. Counting this one, how many semesters have you attended high school, altogether?
17. How many different high schools have you attended since you began your high school work?
18. Name them _______________________________________________________
19. In what state or country were you born? ______________________________
20. In what state or country was your mother born? _______________________
21. In what state or country was your father born? _________________________
22. What is your father's occupation? __________________________________
23. Give your height (with shoes on) ____________________________________
24. Give your weight (fully dressed but without overcoat) ________________

Part II (To be filled out by the principal)

1. In what academic fifth of his class does this student rank? _____________
2. How many days of absence stand against the entire high school record of this student, if known? ______________
3. How many days has he missed this year? _____________________________
4. What was the chief cause of such absence, if known? _________________
5. Was lack of interest, truancy, or delinquency a factor? ______________
6. If this student has taken any other intelligence test, please give the name of test and score. ______________
7. Is this student using his own resources to such an extent that he is earning much or all of his way through school? ______________
8. Race (Do not omit this question. See letter of instruction for information to be given here.) ______________________

Name of teacher or person giving test: ________________________________

Post Office Address
Questionnaire for High School Seniors

Part I (To be filled out by the student)

1. Name of school ____________________________   Boy or girl __________________
2. Print your name ____________________________
3. What is your age in years? _______ Months: _______
4. What two subjects do you like best in high school?
5. What two subjects do you like least in high school?
6. What course are you taking in high school?
7. Give the date when you expect to graduate ____________________________
8. Counting the present semester, how many semesters have you attended high school, altogether?
9. How many different high schools have you attended?
10. Name them __________________________________________________________________
11. In what state or country were you born? ________________________________
12. In what state or country was your father born? __________________________
13. In what state or country was your mother born? _________________________
14. What is your father's occupation? ______________________________________
15. About how much is your father's annual income? _________________________
16. Do you plan to go to some school or college after you graduate? If so, what school, college, or university have you decided to attend?
17. If so, what is your father's occupation? __________________________________
18. About how much is your father's annual income? _________________________
19. What is your father's annual income? ________________________________
20. What is your mother's occupation? _____________________________________
21. Give your height (with shoes on) ______________________________________
22. Give your weight (fully dressed but without overcoat) _____________________

Part II (To be filled out by the teacher or principal)

1. In what academic fifth of his class (or grade) does this pupil rank?
2. Does the course mentioned under 6 above prepare for college?
3. How many days of absence stand against the record of this student during his entire high school career?
4. What was the chief cause of such absence?
5. Was lack of interest, truancy, or delinquency a factor?
6. Do you keep permanent individual school-life records in your school system?
7. Will you please make certain that the student has filled out his part of this questionnaire completely and has answered questions 6, 7, and 8 correctly?
8. If this pupil has taken any other, intelligence test, what was the name of the test and score?
9. Was this pupil upon his own resources to such an extent that he earned much or all of his way through school?
10. Race (Do not omit this question. See letter of instruction for information to be given here.)
