INTELLIGENCE AND PERSONALITY STUDIES
OF STRAWN (ILLINOIS) COMMUNITY HIGH SCHOOL

by
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Contributions of the Graduate School
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Number 387

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The thesis of Mabel Louise Marlar, Contribution of the Graduate School, Indiana State Teachers College, Number 387, under the title Intelligence and Personality Studies Of Strawn (Illinois) Community High School is hereby approved as counting toward the completion of the Master's degree in the amount of 8 hour's credit.

Committee on thesis:

R. Acher
F. Griffith
E. L. Keell, Chairman

Date of Acceptance
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CHAPTER I

INTRODUCTION

I. GENERAL STATEMENTS

Numerous studies have been made of various school systems with regard to curriculum, activities, and general nature of the student body. In the majority of these surveys, the individual pupil has been lost sight of because of the large numbers involved, and while important facts were disclosed, it has been difficult, if not impossible, to relate these facts to the individual personalities of the pupils.

II. STATEMENT OF THE PROBLEM

In this survey the entire enrollment of the high school, forty-two students, has been studied both collectively and individually as to intelligence, achievement or progress in school, personality adjustment, vocabulary, and school marks. The purpose of this has been two-fold: (1) to compare and relate these factors to the individual intelligence of each pupil, and (2) to note the effect of personality adjustment upon these factors.
III. DEFINITION OF TERMS

Adjustment. Adjustment refers to the degree to which individual pupils are adjusted to the various phases of their environment, as measured by Symond's Adjustment Questionnaire. The term "personality adjustment" as used in this paper is synonymous with "adjustment."

Achievement. This term shall be interpreted as referring to a pupil's progress in high school as measured by the Myers-Ruch High School Progress Test, Form A. All scores have been changed to percentile ranks so that a comparable score could be obtained for each pupil regardless of grade in school.

Intelligence. The intelligence or intelligence quotient of each pupil has been measured individually by the Revised Stanford-Binet Test of Intelligence by Terman and Merril. Throughout this thesis the terms "intelligence" and "I. Q." have been used synonymously to express the results of such a test.

Vocabulary. This term refers to the pupil's ability to recognize and identify properly words which appear in literature and general reading. It does not include knowledge of scientific or specialized terms, nor does it measure the pupil's use of the more common words of everyday speech. Form A of the Inglis Test of English Vocabulary was used to measure this ability.
School Marks. This refers to the grades actually given to the pupils while in high school as differentiated from the score obtained in the achievement test. The grading system used in this school is a five-point system consisting of the letters A (excellent), B (good), C (average), D (poor but passing), and F (failure). In addition plus and minus signs are used to indicate finer distinctions. In recording these grades in the official school records the following system is used and has been so used in this study: A, 96; A-, 94; B+, 93; B, 90, B-, 87; C+, 84; C, 80; C-, 78; D+, 77; D, 75; and D-, 70. A grade of F which is ordinarily unrecorded (no credit) has been averaged here as if it were a 60 as pupils are seldom failed unless their work is definitely and clearly below 70. As the actual numerical grade frequently may be well below 60 it was considered that this gave a fair basis for figuring the averages.

As all courses are equal in length and credit, the grades for each pupil were averaged to obtain a mean grade for his high school career.

IV. REASONS FOR TOPIC SELECTION

This subject has been selected for two reasons: (1) because its findings should be of interest to any investigator interested in studying the individual pupil and the factors which make up his personality; and (2) because it is important
to the school in which the survey was made and may serve as a tool in working out future policies and in helping guide individual pupils.

V. SCOPE AND LIMITATION

This study includes every pupil enrolled in the high school during the year 1938-1939 with the exception of two who withdrew too early to be tested. Each of these pupils has been studied individually as to intelligence, achievement, vocabulary, school marks, and adjustment. In addition ten of the forty-two pupils, the five showing the best adjustment and the five showing the poorest adjustment, have been studied in even greater detail by analyzing their personality adjustment into its component parts.

VI. PROCEDURE

The first step involved administering an individual Revised Stanford-Binet Test of Intelligence to each pupil in school. This was started near the beginning of the first semester and continued during the school year until every pupil was tested. Next the Adjustment Questionnaire by Percival M. Symonds was given to the whole school soon after the beginning of the second semester. The Myers-Ruch High School Progress Test, Form A, and the Inglis Test of English Vocabulary, Form A, were given during the last month of the
school year after all the basic school work had been finished. School marks were obtained from the official school records at the end of the school year and included the mean of every grade given each pupil during his high school career.

VII. REVIEW OF PREVIOUS STUDIES

A number of studies have been made of the intelligence of people in general and a much smaller number of the intelligence of the high school population in this country. Many of the latter are not sufficiently recent to be of much value at the present time because of the great change that has taken place in both the number and type of pupils that are to be found in our high schools. At one time the median intelligence quotient for high school pupils was far above that of the population in general since the high school population was a highly selected group. Gradually this median has become lower due to the increasing enrollment. As a larger and larger per cent of children of high school age enroll in the high schools, the intellectual levels more nearly approach that of the entire population. Hence the great difference in intelligence formerly noted is not now nearly so marked.

Terman\(^1\) in 1919 reported a median intelligence

quotient for entering high school students of 105. Proctor in 1925 in a similar study of pupils of different grades found a median intelligence quotient of 106. Both of these tests were made with the Stanford-Binet test of intelligence.

Wessel reported median I.Q.'s of 107.5 for 172 ninth-grade pupils; 107.5 for 151 tenth-grade pupils; 110 for 124 eleventh-grade pupils; and 108.7 for 87 twelfth-grade pupils. This study was made in the Cheltenham (Pa.) High School with the Terman group test.

The New Hampshire State Board of Education for 1931 in an unpublished research bulletin reported the results of a state testing program using the Otis Self-Administering Test, Higher Examination, Form B, and a few others, for more than 11,000 twelfth-grade pupils in 97 approved high schools and academies. The medians were given for four successive years, 1928 to 1931. In two of these years the medians were 105 and in the other two, 106. Naturally these scores would be expected to be much higher than for the high school population in general since seniors are a more highly selected group.

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In Reading, Pennsylvania, a research\(^5\) was made in 1929 on the intelligence quotients for the tenth, eleventh, and twelfth grades, using the Terman group test. The medians were: 100.6 for 606 tenth-grade pupils; 103.7 for 450 eleventh-grade pupils; and 107 for 398 twelfth-grade pupils.

From these studies it is probably safe to conclude that the median I. Q. for high school pupils was somewhere between 105 and 110 during these years and that each higher grade level probably had a little higher median than that of the class just below it, due to selection and elimination of many of the less able students.

Since all these studies were made previous to 1931, it is interesting to note what changes have taken place since then.

The National Survey of Secondary Education conducted under the leadership of Dr. Leonard V. Koos, of the University of Chicago, secured data from two comprehensive high schools, and one commercial school.\(^6\) Several different tests were used in the various schools, hence the results of these tests are not strictly comparable. However, the amount of difference between them was found to be not greater than the probable error and the combining and averaging of these different scores probably did not lead to any serious error.

\(^5\)Ibid., p. 18.
\(^6\)Ibid., pp. 19-20.
The results of this survey are given in Table I. The median I. Q. for all the high schools combined ranged from 99 to 105 according to grade classification. For all grades of high school combined it was 102.

TABLE I

**COMPARISON OF I. Q. OF PUPILS IN SECONDARY SCHOOLS AS OBTAINED IN VARIOUS INVESTIGATIONS**

<table>
<thead>
<tr>
<th>Investigation</th>
<th>Date</th>
<th>Test</th>
<th>Grade</th>
<th>Number of Cases</th>
<th>Median I. Q.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terman</td>
<td>1919</td>
<td>Stanford-Binet</td>
<td>9</td>
<td>106</td>
<td>105</td>
</tr>
<tr>
<td>Proctor</td>
<td>1925</td>
<td>Stanford-Binet</td>
<td>9-12</td>
<td>131</td>
<td>106</td>
</tr>
<tr>
<td>Reading, Pa.</td>
<td>1929</td>
<td>Terman</td>
<td>10-12</td>
<td>1,454</td>
<td>103</td>
</tr>
<tr>
<td>Wessel</td>
<td>1930</td>
<td>Terman</td>
<td>9-12</td>
<td>534</td>
<td>108</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>1931</td>
<td>Otis</td>
<td>12</td>
<td>11,000</td>
<td>106</td>
</tr>
<tr>
<td>National Survey of Secondary Education</td>
<td>1932</td>
<td>Otis and Pressey</td>
<td>9-12</td>
<td>9,120</td>
<td>102</td>
</tr>
<tr>
<td>National Survey of Secondary Education</td>
<td>1932</td>
<td>Otis and Pressey</td>
<td>Trade</td>
<td>954</td>
<td>91</td>
</tr>
</tbody>
</table>


These results were significantly lower than those reported in the studies mentioned before. This may be due to two factors: (1) the schools included in the first studies were all of the comprehensive type and many were predominately
college-preparatory; and (2) the school population has changed materially in the last few years so that it now more nearly approximated that of the population in general. In fact, if the pupils of the trade schools had been included in the figures for the Survey the median I. Q. would have been approximately 100 which is considered to be the median for the total population.

Thus it is probably reasonable to conclude that the median intelligence quotient for high school pupils is somewhere near 102 at the present time; that it seldom differs from that of the general population by more than a few points; and that it will gradually approach 100 with the increasing democratization of the high school population.

Olander and Walker\(^7\) studied teachers' ability to estimate pupils' intelligence quotients. They found that when the average of four teachers' estimates were correlated with the average of three intelligence tests that the correlation was .782. The mental tests used were the Otis Self-Administering Test, The Henmon-Nelson Test, and the Kuhlman-Anderson Test. From these results they concluded that teachers' combined estimates show a fair degree of validity and could be used with some reliability in those schools where the expense made formal intelligence testing impractical.

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\(^7\)Herbert T. Olander and Bert S. Walker, "Can Teachers Estimate I. Q.'s?," *School and Society*, 44:744-6, December 5, 1936.
Sobel made an interesting investigation of the relative values of teachers' marks and achievement test scores. For the purposes of this study she divided the students into three groups: (1) those who ranked higher on teachers' marks than on standardized educational test scores; (2) those who ranked approximately the same in both tests; and (3) those who ranked considerably lower in teachers' marks than in achievement test scores. All scores were then converted into T scores and the difference between achievement scores and teachers' marks for all subjects figured. Then 100 was added to each difference so obtained to get positive figures called measurement difference scores or M. D. scores. Results showed that children with high M. D. scores rated lower in mental health than the other two groups. They were outstanding in penmanship, attendance, punctuality, effort marks, and teachers' ratings on industry, perseverance, cooperativeness, dependability, ambition, and personal attractiveness. The children with low measurement difference scores were low in the above traits. Those scoring about the same excelled both groups in number of desirable traits and indicated an unusually good adjustment. She concluded that school marks should

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definitely be limited to achievement; that personality traits should be evaluated separately; that there should be a definite understanding as to the amount of weight to be given to penmanship; that standard tests be used in checking achievement; and that there should be a definite plan for developing in pupils traits and habits conducive to school success. Finally the warning was given that those children who are graded too high in comparison with their achievement scores are in danger of becoming maladjusted emotionally.

In the field of personality adjustment, Symonds and Jackson⁹ correlated intelligence test scores with school marks and achievement test scores, and school marks with achievement. They also correlated desirable and undesirable behavior with school marks and achievement. They found that

There is a real relationship between school achievement and conduct so that conduct ordinarily considered commendable is positively correlated with achievement, and undesirable conduct is negatively correlated with achievement. The present study does not indicate whether the relationships are due to the influence of desirable or undesirable conduct on achievement, or to the influence of high or low achievement on conduct.

They also noted a slight tendency for teachers to be influenced by undesirable behavior in assigning marks lower than is justified by the real relationship between achievement and conduct.

This tendency, however, was only slightly due to teacher prejudice or favoritism.

In the same study it was found that girls were slightly better adjusted than boys; that younger children were usually better adjusted than the older; that there was no correlation between adjustment and school grades; and that there was apparently none between intelligence and adjustment.

In contrast to this statement on the relationship of age to adjustment in school children is the finding of Margaret Smith. She found better adjustment in the older pupils, possibly due to the elimination of the maladjusted pupils. She also noted a tendency for under-age pupils to improve in adjustment and for over-age pupils to become increasingly maladjusted.

In a study of parental occupations and children's intelligence test scores, Jordan found that farmer's children had a median intelligence quotient of 88. This is much lower than that found in this study for the rural children, and may be due to the different natures of the two rural communities.

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The general distribution for the one hundred four children in this grouping was:

<table>
<thead>
<tr>
<th>I. Q. Range</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>110-119</td>
<td>11.53%</td>
</tr>
<tr>
<td>90-109</td>
<td>35.5%</td>
</tr>
<tr>
<td>80-89</td>
<td>21.1%</td>
</tr>
<tr>
<td>70-79</td>
<td>16.3%</td>
</tr>
<tr>
<td>Below 70</td>
<td>15.4%</td>
</tr>
</tbody>
</table>

These results are listed for comparison with the results of this study in which sixty-four per cent of the pupils were farmer's children and nearly all the parents were engaged in some rural occupation.

Burgert\textsuperscript{12} found the correlation between the intelligence quotients and average school marks of 191 junior high school pupils to be only .48. He concluded that teachers' marks were not a reliable basis for predicting school success.

In commenting upon the relationship of size of family to personality adjustment, Burnham\textsuperscript{13} quotes Buesmann's conclusions that the moderate-sized family, about three brothers and sisters, led to the best adjustment.


CHAPTER II

PRESENTATION OF DATA

I. GENERAL NATURE OF THE HIGH SCHOOL

Strawn Community High School is a regular-four-year, fully accredited, nine-month high school located in a small town of less than three hundred population. It is situated in the center of a prosperous farming section of the state. The interests of the people are predominately agricultural. In fact, 64 per cent of the fathers of the pupils in school are farmers. The other 36 per cent are scattered among the usual small-town occupations and the majority of them either have some financial interest in the farms around or become temporary farm workers at the busier seasons of the year.

The school itself draws from the entire township (Fayette) in which it is located. This township is unusually small, however, and as the population is largely rural and the farms much larger than average, the school population is proportionately small. The usual enrollment ranges from forty to fifty pupils. At the time this study was made there were only forty-two pupils who remained in school long enough to be given the entire testing program.

The curriculum of the school is necessarily limited to fewer subjects than are generally considered desirable.
However, by rotation of subjects it has been possible to offer all the basic academic subjects, a short but modernized commercial curriculum, as well as work in guidance and some of the newer socialized studies. A consistent attempt has been made to keep the school up-to-date in curriculum and method.

The number of extra-curricular activities is small. In athletics the boys are given opportunity to participate in baseball and basketball and the girls have a well-organized program of games and sports. Because of the very small enrollment each pupil has an excellent chance of becoming a member of a team. Unlike the larger high schools, this one makes it entirely possible for every boy to become a team member and to participate in inter-scholastic games. Each year there is either a school band or glee club organized. At least two plays are produced each year in which all members of the junior and senior classes have a part. The school publishes an annual each year in mimeographed form, the work of which is done entirely by the students. A few parties, picnics, and the Junior-Senior banquet complete the program of extra-curricular activities.

At the time of this survey, there were sixteen girls and twenty-six boys enrolled. There were four teachers including the principal.
II. COMPARISON OF BOYS' AND GIRLS' STANDINGS IN ALL FACTORS

At the beginning of this study comparisons were made of the relative standing of boys and girls in all the various phases of the survey. In intelligence the mean I. Q. for the entire school was found to be 106 and the median was 109, which compares very favorably with the 102 median reported in the Secondary-School Population survey made by the Department of the Interior in 1932.14 The average score for boys in this high school was 105.3 and for girls 107.6. This indicates that the girls' standing in this factor was slightly higher than the boys'. However, a comparison of the extremes showed that the average I. Q. for the five highest boys was slightly above that of the five highest girls--123.8 to 123.2. At the other extreme they were equally close, and the five lowest boys had a mean I. Q. of 87.2 and the five lowest girls an I. Q. average of 88.6. Such close scores indicate that there was no significant difference between boys and girls in intelligence. Table II shows these comparisons.

In school achievement, as determined by the Myers-Ruch High School Progress Test, the average for girls was again

### TABLE II
COMPARISON OF BOYS AND GIRLS IN INTELLIGENCE QUOTIENTS

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
<th>Entire School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>105.3</td>
<td>107.6</td>
<td>106.2</td>
</tr>
<tr>
<td>Five highest</td>
<td>123.8</td>
<td>123.2</td>
<td>126.0</td>
</tr>
<tr>
<td>Five lowest</td>
<td>87.2</td>
<td>88.6</td>
<td>81.0</td>
</tr>
</tbody>
</table>

### TABLE III
COMPARISON OF BOYS AND GIRLS IN ACHIEVEMENT
As Measured in Percentiles by the Myers-Ruch High School Progress Test

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
<th>Entire School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>54.6</td>
<td>61.3</td>
<td>57.1</td>
</tr>
<tr>
<td>Five highest</td>
<td>94.2</td>
<td>84.6</td>
<td>94.2</td>
</tr>
<tr>
<td>Five lowest</td>
<td>7.2</td>
<td>34.2</td>
<td>7.2</td>
</tr>
</tbody>
</table>

### TABLE IV
COMPARISON OF BOYS AND GIRLS IN SCHOOL MARKS

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
<th>Entire School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>81.5</td>
<td>84.9</td>
<td>82.8</td>
</tr>
<tr>
<td>Five highest</td>
<td>92.6</td>
<td>92.4</td>
<td>93.7</td>
</tr>
<tr>
<td>Five lowest</td>
<td>70.6</td>
<td>73.3</td>
<td>69.7</td>
</tr>
</tbody>
</table>
higher than that for boys. After all scores were compared to the standards given for each grade and changed to percentile ranks it was found that the girls were nearly seven percentile points above the boys. The boys, however, made the highest scores and the five best were notably higher than the five best girls. At the lower end of the scale the boys again made the extreme scores. The five lowest boys made an average of only 7.2 percentile points while the girls made 34.2. This seems to indicate that taken as a group the girls were better students than the boys but that the leaders of the school in scholarship were all boys. It is interesting to note that the five highest of the entire school—boys and girls taken together—included only boys and that the lowest group was also made up of boys exclusively. This is in line with the often expressed opinion of teachers that girls usually make the most consistent and dependable students as a group but that some of the boys frequently reach the heights. Table III shows these facts.

A comparison of boys and girls in school marks shows even closer averages. At the extremes there was little to choose between them (Table IV) but the girls again led in mean score. If these were translated into the school grading system it would mean that the average grade for girls was a C+ and the average grade for boys was a C.

In vocabulary (Table V) it was found that about an
equal proportion of boys and girls were above the norms given for each grade. However, more girls were at the norm and fewer below the norm than boys. It is notable that the school as a whole fell below the standards given for high school pupils in general.

In only one factor, personality adjustment, was there a consistent difference between boys and girls. Here the
girls led at all points, highest, lowest, and average (see Table VI). Judging from this the girls were better satisfied with their lives than were the boys. This may in part be attributed to the nature of the curriculum which has greater appeal to the girls. In such a small school as this, it has been found impractical to add the vocational and manual skill subjects which so often appeal to boys. This factor has been further analyzed in a later section of this study.

III. INTELLIGENCE OF STRAWN HIGH SCHOOL PUPILS
AND RELATED FACTORS

1. Relationship of intelligence to achievement.
In comparing the two factors of intelligence and achievement, two goals were held in view: (1) to determine the relationship in terms of the group and (2) to make individual studies and comparisons. For the first, the correlation between these two factors was figured by the Spearman rank-order method of correlation which was then changed into the product-moment \( r \) by means of the appropriate tables. This coefficient of correlation was found to be .82 which indicated that the two were quite closely related, as might be expected. This is a much higher degree of correlation than is usually found and indicates that these pupils were making better use of their natural abilities than the average. An examination of Figure 1, however, shows that while the majority of pupils achieved
<table>
<thead>
<tr>
<th>Pupil</th>
<th>I. Q.</th>
<th>Achievement score percentiles</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>139</td>
<td>97</td>
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<tr>
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<td>70</td>
<td>3</td>
</tr>
<tr>
<td>42</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**FIGURE 1**

CORRELATION OF I. Q. AND ACHIEVEMENT SCORES

\( r = .82 \)
scores that compared favorably with their rank in intelligence, a number—approximately one-fourth—had achievement score percentiles that were markedly lower or higher than their intelligence rank would seem to predict. Pupils 4, 5, 13, and 19, for example, have apparently worked well below capacity and pupils 24, 25, 39, 40, and 42 have achieved much more than one would be led to expect. Over one-half of the pupils have achievement ranks that are very close to their intelligence ranks. This is apparent if one traces across the lines that are nearly horizontal.

Interpreted in this way, those pupils that are working so far below capacity become a challenge to the teacher. Some method whereby these pupils can be induced to accomplish more in school must be determined if the school is to function efficiently and the best interests of all the pupils are to be furthered. Putting it another way, the coefficient of correlation, .82, might be considered sufficiently high to cause the teachers and administrators to feel rather complacent about the results of their teaching. An analysis of the chart, however, presents individual problems that must be solved before the task of teaching can be considered well-done. In a small school of this kind, this problem is solvable to a large extent but further analysis is necessary.
2. Comparison of intelligence and school marks.

Figure 2 shows the average grades given each of these pupils during his high school career and his corresponding intelligence quotient. Again the coefficient of correlation, .81, figured by the rank-order method, is high, indicating that in general the grades given each pupil by his teachers are closely related to his intelligence. Not all of the pupils who show a much lower rank in achievement than in intelligence show a corresponding lower rank in school marks than in intelligence, however. Again the figures for pupils 13 and 19 indicate that their school work was far below capacity. Pupils 4 and 5, however, received grades more in keeping with their intelligence ranks. If this analysis is carried to the information given in Figure 3, this relationship is clearer. Two interpretations are possible here: either the teachers have been in error in grading pupils 4 and 5, or these pupils have worked primarily for temporary grades and have not acquired the broad and basic knowledge that their work could have given them.

Pupils 13 and 19, on the other hand, have by both criteria, worked far below capacity and obtained relatively little from their school careers. These two offer greater problems than pupils 4 and 5.

If the material in Figure 2, page 24, is analyzed further, it is noticeable that a number of pupils have received grades that ranked far above their intelligence ranks. Are
FIGURE 2
CORRELATION OF INTELLIGENCE AND SCHOOL MARKS
\[ r = .81 \]
these the same pupils whose achievement rank was also far above their intelligence rank? If so the comparatively high grades were probably justified; if not there is reason to investigate further. Of the same four pupils--24, 25, 39, 42, two of them, 39 and 42, did receive much higher ranks in both achievement scores and teachers' grades than they did in intelligence. Probably these pupils worked harder than most and their school grades are apparently justified. Pupils 24 and 25 received comparatively lower ranks in school marks than in achievement scores. Either these pupils have been under-rated by their teachers or their school marks have been lowered by failure to complete mechanical assignments. There is some reason to believe that this latter factor accounts for much of the discrepancy between the marks given by teachers and the scores on standardized achievement tests. Some pupils do not fit into the routine of the school; they fail to hand in written assignments; their work is not done on time, or they fail to recite in class, yet they actually absorb much of the information which the course attempts to give. Naturally their achievement scores outstrip their school grades. Possibly these pupils have failed to make proper adjustment. This possibility will be examined later in this study. On the other hand, it is possible that teachers have placed too much faith in the mechanical aspects of their assignments and have graded on written work handed in, workbooks completed, and assignments done on time rather than on educational goals achieved.
The coefficient of correlation for achievement score rank and rank in school marks was .84. In about one-fourth of the cases—approximately 11—there was a great discrepancy between the ranks of pupils in achievement and in school marks. (See Figure 3, page 27).

Figure 4 shows graphically the general relationship between achievement and intelligence. On the basis of intelligence quotients the school was divided into three groups of fourteen each, the third having the highest intelligence quotients, the third having the lowest, and the middle third. The highest third in intelligence quotients had a mean achievement percentile score of 82; the middle third had a mean percentile of 65; and the lowest third had an achievement percentile average of only 23. This shows a sharp break between the amount of achievement of the upper two-thirds and the lower third. As the mean intelligence quotient for each third in turn was 121, 107, and 89 and the medians were 120, 108, and 91, the reason for this great difference is apparent. The two upper groups were well above the medians for the high school population in general (see Table I, page 8) but the lowest third fell far below and was, in fact, well below the first quartile point for any grade. There was every reason why this lowest third should have difficulty in doing school work.

3. **Achievement and vocabulary.** A final study was made
**FIGURE 3**

**CORRELATION OF ACHIEVEMENT AND SCHOOL MARKS**

\[ r = .84 \]
FIGURE 4

ACHIEVEMENT IN SCHOOL OF THE THREE GROUPS IN INTELLIGENCE
of pupils' ratings in achievement and in English vocabulary. This was done in order to give one more point of comparison in determining the general ability and intelligence of these pupils. A vocabulary test was chosen for this purpose because the use and understanding of words is so often considered to be a major test of intelligence and alertness. Terman\textsuperscript{15} says, "We have found the vocabulary test to be the most valuable single test in the scale" in speaking of the vocabulary part of the Stanford-Binet test.

It is probable that vocabulary is a product of both intelligence and study or reading, hence it should be useful in checking the validity of the scores when there was a major difference between rank in intelligence and that in achievement.

The test chosen, the Inglis Test of English Vocabulary, did not give norms that could be used in ranking the pupils. Only the medians for each grade were given as follows:

\begin{align*}
9\text{th grade} & : 45 \\
10\text{th grade} & : 63 \\
11\text{th grade} & : 78 \\
12\text{th grade} & : 87
\end{align*}

From these medians it was decided arbitrarily to choose the approximate half-way point between them as marking the boundaries of the range of the norms. This gave a range as

\begin{itemize}
\item \textsuperscript{15}Lewis M. Terman and Maud A. Merril, \textit{Measuring Intelligence} (Boston: Houghton Mifflin Company, 1937), p. 302.
\end{itemize}
follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th grade</td>
<td>37-54</td>
</tr>
<tr>
<td>10th grade</td>
<td>55-70</td>
</tr>
<tr>
<td>11th grade</td>
<td>71-83</td>
</tr>
<tr>
<td>12th grade</td>
<td>84-96</td>
</tr>
</tbody>
</table>

Any pupil making a score above this range for his grade was considered to be above the norm in vocabulary; any pupil making a score below this range was assumed to be below the norm for his grade. Since no standards other than the medians were given for this test, it was impractical to rank the pupils as was done for the other tests.

The general results of this comparison of vocabulary and achievement are shown in Figure 5. For this study the school was again divided into thirds, this time on the basis of achievement rank. Those pupils who had achieved the most in school had the greatest number above the norm in vocabulary and the fewest below the norm. The number below the norm increased with each successively poorer group in achievement. Taken as a whole the school showed a very poor vocabulary rating. There were only eight out of the forty-two who were above the norm, fourteen at the norm, and twenty below the norm.

If this comparison is carried to individual pupils it is found that none of those pupils whose achievement rank was far below his rank in intelligence (numbers 4, 5, 13, and 19) ranked above the norm in vocabulary and only two (4 and 5) ranked at the norm. These last two also showed a comparatively
## NUMBER ABOVE NORM IN ACHIEVEMENT

<table>
<thead>
<tr>
<th>Below Norm in Vocabulary</th>
<th>At Norm in Vocabulary</th>
<th>Above Norm in Vocabulary</th>
</tr>
</thead>
</table>

## NUMBER AT NORM IN ACHIEVEMENT

<table>
<thead>
<tr>
<th>Below Norm in Vocabulary</th>
</tr>
</thead>
</table>

## NUMBER BELOW NORM IN ACHIEVEMENT

<table>
<thead>
<tr>
<th>Below Norm in Vocabulary</th>
<th>At Norm in Vocabulary</th>
</tr>
</thead>
</table>

**FIGURE 5**

ACHIEVEMENT AND VOCABULARY
higher rank in school marks than in achievement. Of those whose achievement rank exceeded their intelligence rank (numbers 24, 25, 39, and 42) only pupil 24 was also above the norm in vocabulary, pupil 25 was at the norm and the other two were below the norm. Vocabulary, then seemed to correlate fairly well with intelligence although there was no way of finding out the exact coefficient of correlation.

In almost all of those individual cases where vocabulary differed greatly from intelligence ranking there was found to be a marked difference in achievement also; in those instances where vocabulary ranking differed markedly from achievement ranking, there was usually found to be a corresponding difference in intelligence rank.

Just as none of those in the lowest third of the school in achievement were above the norm in vocabulary, none of those in the lowest third in intelligence was above the norm in vocabulary. In fact none of the latter even reached the norm in vocabulary.

4. General summary of intelligence and related factors. In general the whole school was lower in vocabulary standing than in any of the other factors studied; in intelligence it was above the norms for high school students (see Table VII, page 33); and in achievement it was slightly above the norm. School marks have been so distributed as to follow a fairly symmetrical curve although the B and D groups have been too
large and the C group too small for a truly normal distribution. Figure 6 shows this division.

TABLE VII
DATA ON INTELLIGENCE QUOTIENTS OF HIGH SCHOOL PUPILS

<table>
<thead>
<tr>
<th>Q1</th>
<th>Median</th>
<th>Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1643 Ninth grade pupils</td>
<td>90</td>
<td>99</td>
</tr>
<tr>
<td>2906 Tenth grade pupils</td>
<td>92</td>
<td>101</td>
</tr>
<tr>
<td>2517 Eleventh grade pupils</td>
<td>94</td>
<td>103</td>
</tr>
<tr>
<td>2054 Twelfth grade pupils</td>
<td>96</td>
<td>105</td>
</tr>
<tr>
<td>42 Strawn H. S. pupils</td>
<td>95</td>
<td>109</td>
</tr>
</tbody>
</table>

Data for all except the Strawn pupils were secured from The Secondary-School Population, 1933 (Washington, D. C.: United States Department of The Interior).

IV. PERSONALITY ADJUSTMENT OF STRAWN HIGH SCHOOL PUPILS

1. The Adjustment Questionnaire. In general, the personality adjustment of the Strawn pupils was lower than the norms given for the Symond's Adjustment Questionnaire. These norms were based on results as obtained from a group of 248 tenth grade boys. As this group would not be typical of an entire high school enrollment, it would seem that these standards are somewhat open to question. They do, however, offer a basis for comparison and as such were used in this study.
FIGURE 6
DISTRIBUTION OF SCHOOL MARKS

F.  D.  C.  B.  A.
2  12  14  13  1
The Questionnaire is composed of seven sections dealing with the pupil's adjustment to (1) curriculum, (2) social life, (3) administration, (4) teachers, (5) pupils, (6) home, and (7) personal life. The highest possible score is 150. Norms are given for the test as a whole and for each section of the test, thereby making it possible to determine whether a pupil is well or poorly adjusted in general and to what degree he has adjusted to each phase of his environment. In the scoring manual that accompanies this Questionnaire, the recommendation is made that the analysis be limited to the sections and not be carried to individual items, as the actual factors that operate to determine an answer to any one question may be very complicated and beyond the scope of the test.

2. Correlation of adjustment and intelligence. In figuring this correlation the Spearman rank order method was used, as in all the correlations of this survey. An examination of Figure 7 reveals a striking lack of consistent relationship between these two factors. In less than a third of the cases do the lines even approach the horizontal. In the rest of the instances the lines show an almost complete lack of any correlation. Many of those with the highest intelligence quotients had the poorest adjustments; several of those whose intelligence rank was low exhibited a fine degree of adjustment to their environments. As might be expected the
<table>
<thead>
<tr>
<th>Pupil</th>
<th>I. Q.</th>
<th>Adjustment Percentiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>4</td>
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<tr>
<td>42</td>
<td>70</td>
<td>4</td>
</tr>
</tbody>
</table>

**FIGURE 7**

Correlation of I. Q.'s and Adjustment

\[ r = 0.026 \]
correlation, .026, is so low as to indicate only a chance relationship or an almost complete lack of correlation. Apparently no prediction can be made of how well a pupil will use his intelligence in making adjustments to the outside world. Other factors must be more important than intelligence.

3. Correlation of adjustment and achievement. Figure 8, page 38, reveals a much closer relationship between adjustment and achievement than existed between intelligence and adjustment. The correlation of .25 shows a definite but low relationship. At the extremes the relationship was more marked. Out of the four pupils, numbers 4, 5, 13, and 19, whose intelligence quotient ranks far exceeded their achievement, only one, number 4, showed a good adjustment. The other three had percentile adjustment scores of 29, 5, and 6 respectively.

On the other hand, of the five pupils, numbers 24, 39, 42, 25, and 40, whose achievement far exceeded what one would be led to expect from their intelligence ranks, four showed very high adjustment scores with percentile ranks of 80, 60, 68, and 97. Only one, pupil 24, showed an adjustment score below the norm.

This seemed to indicate that personality adjustment was a potent factor in influencing school progress in those instances where the degree of adjustment or non-adjustment was extreme.
FIGURE 8

CORRELATION OF ACHIEVEMENT AND ADJUSTMENT

\[ r = .25 \]
It would be inaccurate to draw the conclusion, as a result of the foregoing, that good adjustment leads to normal achievement in school. It would be just as true to say that ability to achieve and progress normally in school was conducive to good personality adjustment. It is actually quite probable that both statements are true in a limited sense. The two factors mutually interact, yet it is doubtful if either is a really decisive or consistent factor. The correlation is too low to do more than merely indicate that the two are interrelated in some cases. An individual study is always necessary to determine when this is true.

4. Adjustment and school marks. When the actual grades given to each pupil were ranked and compared to adjustment ranks, a correlation similar to the preceding was found. As shown in Figure 9, only about one-fifth of the pupils had similar ranks in each factor. These were pupils 2, 7, 9, 11, 23, 25, 29, and 33. Opposed to these were such pupils as 40 and 32 whose adjustment was so much better than their grades, and pupils 1, 5, 15, and 21 who ranked high in school marks but low in adjustment. These are only a few of those who showed great discrepancy in ranks. An examination of the chart reveals many more. Again it is possible to draw only the unsatisfactory conclusion that school marks and adjustment mutually interact in some instances but that in others there seems to be no measurable or visible connection.
### FIGURE 9

**CORRELATION OF ADJUSTMENT AND SCHOOL MARKS**

\[ r = .26 \]
5. Adjustment and extra-curricular activities. A moderate amount of participation in activities and social life is generally conceded to be a desirable thing for high school students. In line with this thought an investigation was made of the number of activities entered into by the three adjustment divisions of the school—the best, the poorest, and the middle group. In order to obtain these figures every pupil was asked to list his participation in all school activities and such related activities as 4-H clubs and Farm Bureau work. These statements were carefully checked for accuracy and then the total for each group added together. Those pupils who were best adjusted participated in a total of forty-four activities; the middle group participated in thirty-six; and the lowest group took part in thirty-one activities. This is illustrated graphically in Figure 10. While the differences between these groups is not great, it leaves little doubt that such participation is an important factor in determining a pupil's adjustment to his environment. This is in agreement with Shaffer's recommendations that persons showing poor adjustment be encouraged to participate in a variety of useful and social activities.

FIGURE 10

ACTIVITIES AND ADJUSTMENT

Total Number of Activities

Highest Third in Adjustment: 44
Middle Third in Adjustment: 36
Lowest Third in Adjustment: 31
6. **Adjustment and size of families.** An effort was made to determine the effect of size of families upon each pupil's adjustment. For this purpose families were divided into three groups on the basis of the number of children in each. The first group included those families with one or two children; the second those families with three to five children; and the third those having six to twelve children. There was no scientific foundation for the selection of the exact number of children to go into each group. It was merely decided that each would correspond roughly with the classification of small family, moderate-sized family, and large family. Each child in the three adjustment groups previously used was then placed in the proper category of family size. The results are shown in Figure 11. Little could be decided as to the effect of small families upon adjustment. In this particular instance the number of children coming from such families in each group was too small to offer reliable data. The moderate-sized family did seem to be conducive to good adjustment and the very large family to poor adjustment, however. Only two children in the best adjusted group came from large families; the middle adjustment group had five children coming from large families; and the group showing poorest adjustment had ten children from large families. As shown in the chart, the number of children from large families increases as the adjustment goes down. On the other hand, the number
### Figure 11

**COMPARISON OF ADJUSTMENT AND SIZE OF FAMILY**

#### Highest Third in Adjustment

<table>
<thead>
<tr>
<th>1 or 2 Children</th>
<th>3 to 5 Children</th>
<th>6 to 12 Children</th>
</tr>
</thead>
</table>

#### Middle Third in Adjustment

<table>
<thead>
<tr>
<th>1 or 2 Children</th>
<th>3 to 5 Children</th>
<th>6 to 12 Children</th>
</tr>
</thead>
</table>

#### Lowest Third in Adjustment

<table>
<thead>
<tr>
<th>1 or 2 Children</th>
<th>3 to 5 Children</th>
<th>6 to 12 Children</th>
</tr>
</thead>
</table>
of children coming from moderate-sized families increases as the degree of adjustment increases.

To put it another way, the children who were best adjusted came predominately from the moderate-sized family; the children who were in the middle group in adjustment were rather evenly distributed as to family size; and the children who showed the greatest degree of maladjustment came predominately from large families.

There was no visible evidence as to why this was true. Possibly economic factors contributed to it. Children from large families usually have less money to spend for themselves and are more handicapped in their social life than those children with fewer brothers and sisters. They frequently have more work to do at home—especially in rural communities such as this—and often have the care of younger brothers and sisters. They have to give in to others' wants more often and must learn to adapt themselves to the wishes and needs of more people. At high school age this is not easy to do. As the social life becomes more and more prominent, this thwarting of individual wants looms larger. Pupils at this age are quite likely to become dissatisfied even though they were completely happy at an earlier age. This factor of large families, then, seems to be an important one at this age. In later years it may become less important. It is even probable that such children may find adjustment to adult life easier because of this forced
adjustment during adolescence. From the standpoint of the school investigator, however, it cannot be ignored because it may soon cease to operate. The high school should take into account such factors and offer work and activities that are comparatively simple, inexpensive, and frequent enough to allow all to participate a part of the time.

7. Adjustment and the curriculum. It was thought that the limited curriculum of this school might have something to do with the comparatively low adjustment. Accordingly each Adjustment Questionnaire was analyzed to determine what per cent of the pupils expressed marked dissatisfaction with the curriculum. It was found that 43 per cent of the pupils expressed this dissatisfaction to such an extent that their percentile rank when compared to the norms would be less than thirty. All of those five ranking lowest in adjustment were included in this group and none of those five ranking highest in adjustment was among them. Apparently, then, this limited offering of subjects was a source of dissatisfaction. Unfortunately it is one that can not easily be remedied.

8. Adjustment and school conduct. Lack of good adjustment frequently shows itself in unsocial conduct at school. The bully, the "show-off", and the impudent often compensate for their maladjustments by such attempts to gain attention. In an effort to find out how well teachers could identify
maladjusted pupils by such conduct a study was made of the adjustment scores of such disciplinary problems. Eight boys were chosen by the teachers as being those who offered the most difficulties in school discipline. The percentile ranks of these boys in adjustment were 4, 4, 6, 20, 24, 36, 41, and 41. Apparently the teachers were justified in their choices of these problem boys. All, with the possible exception of the boys who had percentile ranks of 41, were sufficiently low in comparison to others to indicate a serious lack of adjustment. Those with the ranks of 41 indicated that their individual adjustments, as analyzed by themselves, were nearly satisfactory but their general conduct showed a decided lack of social adjustment as seen by others.

Another group that is an even more serious problem in adjustment is the retiring, shy, uncommunicative type. Again teachers were asked to list those who fell in this category. Eight boys and girls were selected in this group. An examination of their adjustment scores revealed percentile ranks of 8, 10, 22, 26, 35, 41, 68, and 51. At least five of these could be considered problems from the adjustment standpoint. The last three had apparently made satisfactory adjustments in spite of their retiring dispositions. Again it would be justifiable to conclude that teachers could pick out many maladjusted children by looking for these characteristics.

When asked to select the five most maladjusted and the
five best adjusted pupils the teachers did not choose so wisely. They were able to make reasonable selections but could not differentiate between degrees of adjustment so well. The results are shown in Table VIII. Eleven different pupils were chosen by the four teachers as belonging in this classification and all but one were boys.

TABLE VIII

TEACHER SELECTION OF MALADJUSTED PUPILS

<table>
<thead>
<tr>
<th>Pupils selected by teachers as being poorest adjusted</th>
<th>Number of times selected</th>
<th>Percentile rank on the Questionnaire</th>
<th>Those among the five poorest according to Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>3</td>
<td>6</td>
<td>*</td>
</tr>
<tr>
<td>34</td>
<td>3</td>
<td>41</td>
<td>*</td>
</tr>
<tr>
<td>31</td>
<td>3</td>
<td>26</td>
<td>*</td>
</tr>
<tr>
<td>19</td>
<td>2</td>
<td>4</td>
<td>*</td>
</tr>
<tr>
<td>37</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>2</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>1</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>1</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>1</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>1</td>
<td>41</td>
<td></td>
</tr>
</tbody>
</table>

In the selection of the five best adjusted (Table IX, page 49) the teachers made more poor choices. They did choose three of the correct ones, however, in each case by three of the four teachers. In one case the same pupil, number 10, was selected for both lists. This illustrates the impossibility of relying upon such selections alone in any study of adjustment problems.
TABLE IX
TEACHER SELECTION OF WELL ADJUSTED PUPILS

<table>
<thead>
<tr>
<th>Pupils selected by teachers as being best adjusted</th>
<th>Number of times selected</th>
<th>Percentile rank on the Questionnaire</th>
<th>Those among the five best according to Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>3</td>
<td>98</td>
<td>*</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>96</td>
<td>*</td>
</tr>
<tr>
<td>11</td>
<td>3</td>
<td>87</td>
<td>*</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>2</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>1</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>1</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>49</td>
<td></td>
</tr>
</tbody>
</table>

Although the teachers made correct choices in nine out of the twenty possible times in one list and seven out of twenty in the other, it is worth noting that none of them was able to detect two out of the five best adjusted nor two out of the five poorest adjusted. If we were to rely on teacher judgment it is probable that many correct selections would be made, but many in need of individual help would be left out entirely.

9. Individual studies in adjustment. On the basis of the results of the Symond's Adjustment Questionnaire the five pupils who were best adjusted and the five who were poorest adjusted were selected for individual study. Pupils 18, 40,
7, 11, and 14 had scores that when compared to the norms for the Questionnaire gave them percentile ranks of 98, 97, 96, 87, and 84 respectively. These pupils had undoubtedly made unusually satisfactory personal adjustments. In contrast to them were pupils 19, 37, 12, 13, and 33 whose percentile ranks when compared to the norms were only 4, 4, 6, 8, and 9. Unquestionably these pupils were greatly dissatisfied with their lives; their degree of maladjustment was so extreme as to place them well below 90 per cent of high school pupils in general. These pupils, in particular, needed personal study and guidance in order to make good use of their lives.

Both the well-adjusted and the maladjusted have been analyzed in detail here for several reasons: (1) to show typical differences between these two types; (2) to show where greatest dissatisfaction existed in both groups; (3) to determine where the greatest degree of satisfaction existed; and (4) to point out ways of helping the maladjusted.

To facilitate this analysis trait profiles have been prepared for each of these ten pupils. In these the various tested qualities of intelligence, vocabulary, achievement, school marks, and adjustment have been recorded in terms of percentile ranks. This gives a picture of each pupil as a whole insofar as it was possible to show it objectively. The one factor of adjustment was then analyzed further and a second profile prepared for each pupil showing his rank in each of the qualities tested by the Questionnaire—adjustment to
curriculum, social life, administration, teachers, other pupils, home and personal life. The following profiles, Figures 12 to 34, give this information.

Pupil 18 was the best adjusted pupil in school. Her intelligence was above the average and each trait in turn was a little higher in rank (Figure 12). Although it would not be accurate to draw such a conclusion unequivocally, it is probably fair to assume that her high degree of adjustment has brought up her rank in the other traits. A glance at her adjustment profile, Figure 13, page 53, shows that this adjustment is well balanced in each of the fields tested. Only in personal life does she indicate any degree of misgiving and even here she is far above the median. This is the profile of a typically happy child who is sufficiently gifted to get the most out of her life.

Pupil 7 had the most balanced record of all those with good adjustment. He was superior in all fields (Figure 14, page 54); each factor kept pace with the others. The individual adjustment profile, Figure 15, page 53, shows general satisfaction with only minor amounts of dissatisfaction with the social life, teachers, and personal life. At the time this study was made he was apparently one of those fortunate individuals who was truly able to live an abundant life.

Pupil 11 also had a very well balanced record. Only in vocabulary was there any weakness. Like pupil 18, this
FIGURE 12

TRAIT PROFILE OF PUPIL 18
FIGURE 13
ADJUSTMENT PROFILE FOR PUPIL 18
(In Percentile Ranks)

FIGURE 15
ADJUSTMENT PROFILE FOR PUPIL 7
(In Percentile Ranks)
Percentiles

FIGURE 14

TRAIT PROFILE OF PUPIL 7
girl exhibited a uniform satisfaction in all factors except adjustment to personal life. This personal discontent is probably characteristic of many adolescents. Figures 16 and 17, pages 56 and 57, show this analysis.

Pupil 14, Figure 18, page 58, had a good record, marred only by school grades. These were slightly above the average, however, and would have been much higher if ill health had not held him back. This boy's good adjustment was really remarkable for he had experienced a very trying and tragic personal situation just the year before this test. This he was apparently able to overcome. His adjustment profile, Figure 19, page 57, shows no factor below the fiftieth percentile.

Pupil 40 differed from the others in the much lower intelligence and academic standing. This girl had an intelligence quotient of only 81 with school marks that were also very low. Her good adjustment may have been the cause of an achievement score superior to her school marks and intelligence. Certainly her adjustment profile indicates a favorable outlook. She seemed satisfied with all phases of her school life although her adjustment to the administration was somewhat lower than the rest. Figures 20 and 21, pages 59 and 60, explain her standings in greater detail.

When the adjustment scores for all five were combined to form an average, a profile like Figure 22, page 60, results. This may be interpreted as a picture of the typical well-adjusted
FIGURE 16

TRAIT PROFILE FOR PUPIL 11
FIGURE 17
ADJUSTMENT PROFILE FOR PUPIL 11
(In Percentile Ranks)

FIGURE 19
ADJUSTMENT PROFILE FOR PUPIL 14
(In Percentile Ranks)
FIGURE 18

TRAIT PROFILE OF PUPIL 14
FIGURE 20

TRAIT PROFILE FOR PUPIL 40
FIGURE 21
ADJUSTMENT PROFILE FOR PUPIL 40
(In Percentile Ranks)

FIGURE 22
COMPOSITE ADJUSTMENT FOR FIVE BEST ADJUSTED PUPILS
(In Percentile Ranks)
pupil in his school. Adjustments to social life, administration, pupils, and teachers are on a par and all uniformly good. These pupils were especially well satisfied with the curriculum and their homes. They showed greatest discontent with their personal lives. Probably even these pupils were in need of some guidance, for lack of adjustment in personal life may be a serious matter.

Among the maladjusted pupils, number 33 showed the greatest uniformity among the various ranks, (Figure 23). He had an intelligence quotient of only 90 and his school work, achievement score, and vocabulary were on a par with it. An examination of his adjustment profile, Figure 24, page 63, shows greatest dissatisfaction with the routine of the school. These low percentile rankings may be accounted for on the basis of his inability to do the school work. He was also discontented with his home and social life. Perhaps the home is one of the greatest causes of maladjustment here for his brother, also one of the maladjusted, rated his home life in about the same way. These boys came from what would ordinarily be considered a good home but their participation in social activities had been somewhat curtailed by their parents. Their father was inclined to be rather dictatorial and made little attempt to reason with his sons. Discipline was based on force rather than on understanding. The boys seemed to resent this parental yoke. Their attitude shows vividly in their answers to the test questions.
FIGURE 23

TRAIT PROFILE FOR PUPIL 33
FIGURE 24
ADJUSTMENT PROFILE FOR PUPIL 33
(In Percentile Ranks)

FIGURE 26
ADJUSTMENT PROFILE FOR PUPIL 37
(In Percentile Ranks)
The brother, pupil 37, had a trait profile (Figure 25) that matched the other's very closely. Their records were similar although the first was a freshman and the latter a senior. The senior was able to take part in more activities and had been given a little more freedom than the freshman, hence his better adjustment to the social life (Figure 26, page 63).

The next pupil to be considered, number 12, had an intelligence quotient of 117 which was well above the average, as shown in Figure 27, page 66. His vocabulary and achievement scores were high and gave percentile rankings similar to that for intelligence. His grades in school were somewhat lower, possibly pulled down by his poor adjustment. His second profile, Figure 28, page 67, bears out this assumption to some extent, for his greatest dissatisfaction was in things pertaining to the school. This boy, a freshman, had not yet succeeded in fitting himself into the school routine. Should he succeed in doing so he presumably could bring up the general level of adjustment and probably improve his school grades. This is an instance in which individual teachers could do much to alleviate this unfortunate condition.

Pupil 19 also exhibited ability far in excess of actual achievement. His intelligence quotient of 112 was high enough to enable him to do better than average school work (Figure 29). Actually he gave the impression of having an intelligence
FIGURE 25

TRAIT PROFILE FOR PUPIL 37
Percentiles

10  30  50  70  90  I. Q.

Vocabulary

Achievement

School Marks

Adjustment

FIGURE 27

TRAIT PROFILE FOR PUPIL 12
FIGURE 30
ADJUSTMENT PROFILE FOR PUPIL 19
(In Percentile Ranks)

FIGURE 28
ADJUSTMENT PROFILE FOR PUPIL 12
(In Percentile Ranks)
TRAIT PROFILE FOR PUPIL 19
quotient of ten to fifteen points lower than that. His poor adjustment probably was the cause of this inferior achievement. An examination of his adjustment profile, Figure 30, on page 67, is very enlightening. He was uniformly dissatisfied with all phases of his school, home, and personal life, yet his relationship with other pupils was unusually good. This boy was a complete misfit in school and possibly would have been happier and better adjusted if allowed to drop out. His discontent, as evidenced by his general behavior, was of long standing and hence very difficult to correct. Out of school and into a new environment, he might achieve an entirely new outlook.

Pupil 13, another boy of good ability but poor achievement, had a trait profile (Figure 31, page 70) very similar to the last although his ranking was a little better in all particulars. Like pupil 37, his adjustment to social life (Figure 32, page 71) was excellent but he was apparently extremely discontented in his relationship to school and home and in his personal life. He had never learned to study or to get any pleasure or satisfaction out of school. He was not even interested in the extra-curricular activities. His attitude of complete disinterestedness characterized every phase of his school life. But for parental intervention he would have dropped out of school when he reached the legal age. He was forced to stay in school, however, and formed attitudes and
Percentiles

FIGURE 31

TRAITS PROFILE FOR PUPIL 13
FIGURE 32
ADJUSTMENT PROFILE FOR PUPIL 13
(In Percentile Ranks)

FIGURE 33
COMPOSITE ADJUSTMENT PROFILE FOR FIVE MALADJUSTED PUPILS
(In Percentile Ranks)
habits of shiftlessness and indifference that may not easily be broken.

The composite adjustment profile, Figure 33, page 71, for these five maladjusted boys shows greatest dissatisfaction with all phases of school and home life. They were best adjusted in their relationships to other pupils and social life. Because they were unable to fit into the existing school routine they acquired a serious bias that may affect their whole lives. Such pupils need to be studied sympathetically by the teachers. They are a challenge to effective school teaching. The most serious aspect of their maladjustment lies in the fact that they have had such attitudes over a period of years. They cannot possibly be changed in a short time.

Figure 34 summarizes the differences between these two extremes in adjustment. In all phases of school life these two groups were widely separated. In their attitudes toward other pupils, social life, and personal life they more nearly approached each other. Yet it should be emphasized that in no phase of their adjustment did the two groups meet. A minimum of thirty percentile points separated them at the closest point and in adjustment to curriculum they were separated by over ninety percentile points.
FIGURE 34
COMPARISON OF TRAIT PROFILES
FOR POOREST AND BEST ADJUSTED PUPILS
(In Percentile Ranks)
CHAPTER III

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY OF RESULTS

1. **As to intelligence.** In general, the intelligence level for this school was considerably higher than that for the population of the United States in general and somewhat higher than that for the average high school. When compared to the intelligence level of other rural-type schools, as reported in other studies, this high school had a much higher level of intelligence. Girls led the boys in mean intelligence quotient though there was little difference in their general distributions.

When intelligence rank was correlated with rank in achievement, it was found that there was a high degree of relationship. The coefficient of correlation of .82 was considerably higher than found in the majority of similar surveys, which indicated that these students were making better use of their mental ability than usual. In individual cases, however, there was found to be a wide discrepancy between intelligence and achievement which indicated that in spite of the high degree of correlation between these two factors for the school as a whole, many individual pupils needed special help and guidance.
There was a correspondingly high degree of correlation (.81) between intelligence and school marks. This is also much higher than commonly found. In this particular instance the faculty seemed to be able to judge actual achievement better than is done in many schools. Probably this was due to the fact that the teachers were able to follow each pupil's work very closely since the enrollment was small. Again there were many individual cases in which this high degree of relationship was not found. A number of pupils of high intelligence made low grades and a fewer number of pupils of comparatively low intelligence made grades that ranked much higher than their intelligence. Part of this difference was probably due to error in teachers' judgments; part to the fact that pupils of high intelligence ranking do not always use their ability to do school work; and part to the fact that many dull pupils work hard and so accomplish more than one would be led to expect.

The correlation between achievement ranking and rank in school marks showed that teachers were able to judge progress with efficiency. The coefficient of correlation was .84 which should be considered unusually high. In about three-fourths of the cases there was little difference between pupils' ranks in these two phases of school work. In the other one-fourth there was sufficient difference to indicate that teachers' marks were sometimes given for other reasons than actual school achievement. There is evidence that marks were occa-
sionally used as disciplinary measures and sometimes as a re-
ward for effort and good conduct.

There was a striking, though indefinite, degree of re-
lationship between intelligence and vocabulary. In general
those with high ranking in intelligence did well in the vocab-
ulary test and those with low intelligence ranking did poorly.
In this regard these pupils compared unfavorably with the
established norms. Though their intelligence and achievement
were both above average, their vocabularies were relatively
deficient.

When pupils were placed in three groups on the basis
of rank in intelligence quotients, it was found that the upper
two-thirds were well qualified to do high school work but that
the lower third were far enough below the average to make their
normal progress difficult.

2. As to personality adjustment. When the pupils'
scores on the adjustment test were compared to the norms given,
it was found that the Strawn pupils were comparatively less
well-adjusted than usual. The girls were much better in this
factor than were the boys. There was practically no correla-
tion between adjustment and intelligence, indicating that
there was not a significant relationship. There was, however,
a positive but low correlation (.25) between adjustment and
achievement in school. Analysis of the pupils' ranks in these
factors showed that personality adjustment was of significance
in influencing school progress primarily when the degree of adjustment or non-adjustment was extreme. There was no evidence as to which of these two factors caused or influenced the other.

The correlation between adjustment and school marks was similar to the preceding. Probably the grades received in school influenced the adjustment of many pupils but others were apparently more affected by other considerations.

Those pupils who participated in several extra-curricular activities were better adjusted in general than those who took part in but a few or none.

Pupils coming from the moderate-sized family were usually better adjusted than those from very small or very large families. Those who had five or more brothers and sisters were usually the poorest adjusted of all, though there were several exceptions to this finding.

A great many pupils expressed dissatisfaction with the curriculum, as would be expected in a school with such limited offerings. That this was highly correlated with lack of adjustment was shown by the fact that the five most maladjusted pupils expressed this dissatisfaction strongly and the five best adjusted pupils showed practically no dissatisfaction with the curriculum.

Those pupils who were disciplinary problems and those pupils who were extremely shy and retiring were both adjust-
ment problems as shown by their scores on the questionnaire. Teachers showed some ability to pick out such maladjusted pupils when asked to choose these two types. They were not, however, able to pick out all the worst cases of maladjustment nor all the best adjusted pupils. Teachers' judgments were apparently helpful but far from infallible in finding such pupils.

Individual studies in adjustment carried the analysis far enough to reveal many causes of satisfaction and dissatisfaction. These were especially helpful in deciding on ways of helping individual pupils.

When the best adjusted and the poorest adjusted were compared by means of trait profiles it was found that they were widely separated at all points, this separation being most pronounced in adjustment to curriculum, administration, teachers, and home, and least pronounced in adjustment to social life, other pupils, and personal life.

II. CONCLUSIONS AND RECOMMENDATIONS

The data of this thesis may well be used in furthering the mental health and morale of the school in general. In particular, it is useable in two ways. First, it should be of use in determining how to adjust the school to the needs of the children who make it up, and second, it may well be used as the first step in the personal guidance of individual
pupils. In order to achieve the first possibility, those interested may use its findings as basic material upon which to work so as to judge how the school may achieve worthwhile educational goals and not merely go through prescribed forms of instruction. For the second possibility, there is much material here, although it is far from exhaustive. The first steps have already been taken in the analysis of the five best adjusted and the five poorest adjusted pupils. If such a study is continued with other pupils as the need arises, there is no reason why the teachers could not obtain a true picture of each child in a manner that is practically free from subjective bias. When such a picture is obtained there is still much to be done, yet it is surprising how quickly the problem clarifies when so many phases of the child's background are laid before the investigator. Symonds says:

In the first place, the test results for a pupil gathered in any one year by teachers, counselors, and physicians need to be brought together so that a picture of the whole child is presented. In the second place, these records need to be cumulated yearly in order to show development. We lose in trying to interpret a boy or a girl by a mere cross-section; a longitudinal record of development is needed as well.17

As the children herein studied are probably typical of many children in other schools, those interested in meeting

these same problems in other situations should find these data of value, both as a basis for comparison, and as a plan of approach.

In this particular high school situation, the findings may be used in a much more definite way. This study would be incomplete if it did not make some recommendations that could be followed by the administrators and teachers concerned. In general the one most important recommendation, and probably the most difficult to follow, is this: the entire program, both scholastic and extra-curricular, should be enriched so as to lead the child out of the narrow provincialism that is so apt to be a part of rural life and guide him into avenues which will broaden his outlook, and above all, keep him interested. This latter point, in particular, seems to give the key to the entire situation. Many of these pupils, by their own statements, were bored and out of sympathy with the school routine. Under such circumstances it is futile to expect optimum or even average results. A pupil who is in school against his will, not only is unhappy and forming habits of indolence and indifference that will be difficult to break, but is probably gaining less from his school work than he would be gaining from the same amount of time spent in other endeavors. In the words of Fletcher Harper Swift:

Today, throughout the world, teachers are thoroughly convinced that the most important basis for a useful and happy adult life is a happy childhood. It is more impor-
tant that children be happy in school than that they should acquire any amount of information. A school is essentially an institution to help children grow, and this growth includes social, physical and spiritual as well as intellectual growth. Without freedom and happiness growth is impossible. 18

The exact methods by which this end may be obtained are probably beyond the scope of this thesis and need more thoughtful investigation. Yet it is possible that much could be accomplished by two methods. First, the program of studies should be enriched by the addition of more studies pertinent to present day life. Although but a limited number can be offered in any one year, yet it is possible to present many of them by planning ahead in such a way as to give them in alternate years. The difficulties in the way of this enriched curriculum, however, frequently come from those very authorities who advocate them most. For example for the past few years in Illinois, as in many states, educational leaders have been stressing the importance of teaching safety education, consumer education, vocational and personal guidance, and other modern subjects. Yet when in this school a plan was worked out whereby these four topics could be taught in a regular course, the state authorities objected on the ground that it did not fit in with the established traditions of school work. This leaves it up to the teachers to embody such interesting and needful topics in

the established courses. Such a plan is, of course, possible, but probably not the most desirable.

The other method of enriching the school program is to offer more extra-curricular activities. In small schools this is not easily accomplished and it is probable that the number should be limited to just those in which there is a real interest and need. Instead of grouping such organizations around the curricular studies, they might be centered around the pupils' interests and hobbies. Nature study, camera, vocational study, and travel clubs are typical of this type. Such organizations not only give real information but help hold pupil interest and cooperation.

Finally, it is recommended that this study be used only as a starting point for more varied and personal investigations to the end that this school, and others, may contribute to the pupils' achievement of that fuller and broader outlook that has been so often described as the abundant life. Only by such a result can any school be said to really educate for life.
BIBLIOGRAPHY
BIBLIOGRAPHY

A. BOOKS


A. BOOKS


B. PERIODICAL ARTICLES


G. UNPUBLISHED MATERIALS

TABLE X

SUMMARY OF PUPIL STANDING IN ALL FACTORS TESTED

<table>
<thead>
<tr>
<th>Order rank</th>
<th>Order rank in achievement</th>
<th>Order rank in school (N-at norm)</th>
<th>Vocabulary standing (+ above)</th>
<th>Order rank in adjustment</th>
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## ADJUSTMENT QUESTIONNAIRE

**FORM A**

_by Percival M. Symonds_

**Teachers College, Columbia University**

### Details

<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>(First name)</th>
<th>(Last name)</th>
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<tr>
<td><strong>Age</strong></td>
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<td>Father's Occupation</td>
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<td>Age</td>
<td>School Grade or Occupation</td>
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### Additional Information

<table>
<thead>
<tr>
<th><strong>Subjects taken this year</strong></th>
<th><strong>Teacher's Name</strong></th>
</tr>
</thead>
<tbody>
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### School Organizations

**To what School Organizations do you belong?**

If you hold an office mention it below

<table>
<thead>
<tr>
<th><strong>In what sports do you participate?</strong></th>
</tr>
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<tbody>
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*Copyright 1932 by Percival M. Symonds*
The questions in this folder are given to you to find out how well you are satisfied with your school and your home. They are asked to find out whether you would like to have some things changed or whether everything suits you as it is. Probably everyone is troubled about some things which he wishes were different and is satisfied with other things which he would like to keep as they are. This is an opportunity for you to indicate whether you like or dislike things at school and at home. Answer all the questions as carefully and as truthfully as you can.

Below are 23 questions each of them to be answered by YES or NO. Read each statement carefully. If your answer is YES draw a line under the word “YES”; if your answer is NO, draw a line under the word “NO”.

Take each question in order. Answer every question. Answer truthfully. Read the samples before you begin so that you will understand how the questions shall be answered.

SAMPLES

a. Do you like to have a good time? YES NO
b. Do you enjoy a toothache? YES NO

IN RELATION TO THE CURRICULUM

1. Do you dislike any of the subjects you are now studying in school? YES NO
2. Name them.
3. Are you required to take these subjects that you dislike? YES NO
4. Do you make good marks in the subjects that you like? YES NO
5. Do you spend much time in study on the subjects you do not like? YES NO
6. Do you often fail in the subjects you dislike? YES NO
7. Would you like to drop any of your subjects? Name them.
8. Do you think there are too many required subjects? YES NO
9. Would you like more freedom in choosing what you study? YES NO
10. Do you think there should be more try-out or optional subjects? YES NO
11. Do you think your high school training will do you much good unless you go on to college? YES NO
12. Are there subjects you would like to take in school if they were offered? YES NO
13. Do you ever feel that you would like to leave school and go to work? YES NO
14. Are most of your studies interesting? YES NO
15. Do you ever worry for fear you will not pass in school? YES NO
16. Is there any subject in which you don’t care whether you do good work or not? YES NO
17. Do you like to master difficult subjects?
   YES NO

18. Are your textbooks interesting and easy to read?
   YES NO

19. Do you feel that most of your subjects will be of great help to you when you finish school?
   YES NO

20. Do you expect to quit school as soon as possible?
   YES NO

21. Do you have difficulty in doing all the work required of you in most of the subjects you are studying?
   YES NO

22. Do you wish there were more holidays and longer vacations?
   YES NO

23. Do you feel sometimes that you must work harder to keep up the record you made in previous years in school?
   YES NO

IN RELATION TO THE SOCIAL LIFE OF THE SCHOOL

1. Do you think student organizations tend to be snobbish?
   YES NO

2. Do you think that pupils have an equal chance to become officers in school organizations?
   YES NO

3. Do you think pupils must belong to a special group in order to become members of social organizations?
   YES NO

4. Should student organizations be given more liberty than they now have?
   YES NO

5. Is the student government of this school controlled by a small group?
   YES NO

6. Do you enjoy the assembly periods in the school?
   YES NO

7. Is the student government worth while?
   YES NO

8. Should the principal and the teachers take part in the work of the student council?
   YES NO

9. Are the assembly periods too long?
   YES NO

10. Do extra-curricular activities take time that should be used for lessons?
    YES NO

11. Do you feel that you are not a welcome member in any of the school clubs?
    YES NO

12. Do you like the way the clubs to which you belong are run?
    YES NO

IN RELATION TO THE ADMINISTRATION

1. Would you hesitate to go to the principal for advice if you thought you needed it?
   YES NO

2. Do you dread being called upon to recite when the principal or supervisor visits your class?
   YES NO

3. Is it your opinion that too much emphasis is placed upon good order or discipline in this school?
   YES NO

4. Do discipline or rules often interfere with your activities?
   YES NO

5. Are you ever punished for things you do not do?
   YES NO

6. Do you think there are too many rules in the school?
   YES NO
7. Do you think the rules are enforced equally against all offenders?
8. Do you like examinations in school?
9. Do you think that examinations in general are fair?

IN RELATION TO THE TEACHERS

1. Do any of your teachers show favoritism?
2. Do you dislike any of your teachers?
3. Would you select another teacher in any of your subjects if you were permitted to?
4. Do all of your teachers make the assignment clear?
5. Do your teachers praise you when you hand in good work?
6. Do any of your teachers enjoy criticizing your faults and errors?
7. Do your teachers usually understand your difficulties?
8. Do any of your teachers mark examinations too severely?
9. Do your teachers require too much home work?
10. Are all of your teachers thoughtful and considerate?
11. Do you believe that the marks that a teacher gives depend upon how much he or she likes the pupil?
12. Do all of your teachers treat you as a friend?
13. Are any of your teachers conceited and pleased to express what they know?
14. Are all of your teachers willing to explain again topics that you do not understand?
15. Do your teachers make assignments too long?
16. Do any of your teachers have a wrong opinion about you?
17. Do your teachers make the assignments too difficult?
18. Do you like criticism from your teachers?
19. Do any of your teachers spend most of their time “preaching” to the class?
20. Do all your teachers give you opportunities to express your opinions?
21. Do any of your teachers allow a few pupils to do all the reciting?
22. As a rule are students who make the best marks in your classes the ones who bluff?
23. Do you think any of your teachers would like to transfer you to another class or to another school?
24. Do most of your teachers try to make the class interesting?
25. Have you any teacher who does not appreciate something funny that happens in class?
26. Do you think that any of your teachers are too strict?
27. Are you given a chance to tell or show what you know in your classes?
28. Are you glad when any of your teachers are absent?
29. Do your teachers ever embarrass you before the class?
30. Are any of your teachers cold and impersonal?
31. Are you ever unjustly reprimanded by any of the teachers in the school?
32. Are any of your teachers more interested in their subjects than in the pupils?
33. Do any of your teachers use sarcasm or ridicule as a method of keeping discipline?
34. Are your teachers generally willing to talk with you about your problems and give you advice?
35. Do any of your teachers resent having a pupil express an opinion which differs from her own?

IN RELATION TO OTHER PUPILS

1. Are you popular with other students?
2. Are there members of your class that you thoroughly dislike?
3. Are you disliked by many of your classmates?
4. Do you think pupils who are grinds make the best marks?
5. Do your best friends ridicule school work?
6. Do you like the best students in your class?
7. Do you like to excel or beat others in their class work?
8. Do a few of the pupils do all the talking during a recitation?
9. Do you like to volunteer in a recitation?
10. Are your classmates more friendly than they were in the lower grades?
11. Do you have as much fun now as you did in the lower grades?
12. Do you find that friends are easy to make?
13. Do other pupils ever give you a chance to express yourself?
14. Have you many friends among your classmates?
15. Do you make any effort to have more friends?
16. Do any of your classmates show that they dislike you?
17. Do other pupils ever call you names?
18. Do you sometimes wish you had no friends?
19. Do other pupils ever ridicule you when you recite in class or when you play games?
20. Do you feel free to express your opinion among other students?
21. Do people like to tease you?
22. Are many of your classmates snobbish?
23. Do you like to talk with girls (if a boy); or do you like to talk with boys (if a girl)
24. Do girls like to talk with you (if a boy); or do boys like to talk with you (if a girl)
25. Do other pupils tend to ignore you?
26. Do you approve of the conduct of most of the students?
27. Do you feel that most of the students are superior to you in school work?
28. Do you feel out of place in a group of pupils?
29. Do pupils enjoy playing jokes on you?
30. Do other pupils give you all the credit you deserve?
31. Do you ever worry because you are not as strong as other pupils?
32. Do you often wish you could get completely away from everyone so that you could enjoy being alone?
33. Would your friends "stand by" you if you were in serious difficulties?

IN RELATION TO HOME AND FAMILY

1. Are you doing as much or as well in school as your parents expect you to do?
2. Do you do as well as your brothers and sisters (or friends)?
3. Do you feel that you have as much spending money as you ought to have?
4. Do your parents require you to do many tasks around the house?
5. Do you like to ask your father for advice or help?
6. Do you often ask your friends to go home with you?
7. Are you often embarrassed because you are ashamed of your clothes?
8. Do you ever feel that your parents do not care for you?
9. Do your parents think that most of your teachers are good teachers?
10. Do you study or pretend to study to avoid home duties?
11. Do you feel lonely when at home?
12. Do your parents want you to do many things that you dislike to do?
13. Do you ever feel that you would like to leave home?
14. Do your parents ever praise you when you have done something particularly well?

15. Do you have a place to keep your own things at home where they will not be disturbed?

16. Does your brother or sister seem to be more of a favorite with either of your parents than you do?

17. Do you feel that you can tell either your father or mother about the things that trouble or worry you?

18. Do your parents still treat you as if you were a little child?

Yes No

Yes No

Yes No

Yes No

PERSONAL

1. Do you feel that you are making quite a success of the things you do?

Yes No

2. Do you feel that people appreciate you?

Yes No

3. Do you often wish you could have more fun than you have now?

Yes No

4. Do you think your work this year is rather monotonous?

Yes No

5. Would you like to be able to go to parties, movies, etc., more often?

Yes No

6. Do people ever make fun of you?

Yes No

7. Do you ever worry about things you have done that you have never told anyone about?

Yes No

8. Do you ever feel afraid because you don't understand about the world and what controls it and where it is going?

Yes No

9. Do you ever wish that you had someone who could tell you things about sex that you would like to know?

Yes No

10. Do you ever feel ashamed of things that you have done?

Yes No

11. Do you sometimes feel that you would like to be free to do just what you pleased?

Yes No

12. Do you sometimes feel that the things you do are of little importance?

Yes No

13. Do you feel that your ideas and opinions are as good as those of your classmates?

Yes No

14. Do you wish for things that you know you cannot have?

Yes No

15. Do you ever have the "blues"?

Yes No

16. Do you think that people often have a really better opinion of you than you deserve?

Yes No

17. Do you wish you could be more attractive?

Yes No

18. Are you in good health?

Yes No

19. Do you like to daydream?

Yes No

20. Do you get tired easily?
MYERS-RUCH HIGH SCHOOL PROGRESS TEST

By CHARLES EVERETT MYERS, Ph.D.
GILES M. RUCH, Ph.D.
and GRAHAM C. LOOFBOUROW, Ph.D.

TEST: FORM A

For Senior High Schools

Read this page. Do what it tells you to do.

Do not open this paper, or turn it over, until you are told to do so. Fill these blanks, giving your name, age, birthday, etc. Write plainly.

Name.......................................................... Age last birthday................. years
First name, initial, and last name

Birthday................................................. Teacher.................................... Grade 9 10 11 12
Month Day

City...................................................... School.................................. Date ............... 19

This test is to find out how much you know about certain high school subjects.

Each question has five answers numbered 1, 2, 3, 4, and 5. Only one answer is right. You are to find the right answer and underline it, as shown in the samples below.

Notice that the answer to the first sample is noun and that the word noun is underlined.

Sample: The word hat is a —
1 verb 2 pronoun 3 noun 4 adjective 5 adverb

Sample: The expression \(a^2\) means —
1 \(a + a\) 2 \(a \times a\) 3 \(a + 2\) 4 \(a \times 2\) 5 \(\frac{1}{2} a\)

Sample: The President of the United States is elected for a term of —
1 one year 2 two years 3 three years 4 four years 5 five years

The answer to the second sample is No. 2, and it is underlined, and the answer to the third sample is underlined.

In some cases the numbers of the five answers have circles around them so that you will know they are not part of the answer.

Your teacher or the examiner will explain further how you are to answer the questions.

Do not answer any questions that you skipped. If you finish the questions in any subject in less than 15 minutes, go right on. Be careful not to go so fast that you make mistakes, but do not spend too much time on any one question. Do not ask any questions about the test after the work is begun. Lay your pencil down.

Do not turn this page until you are told to begin.

Published by World Book Company, Yonkers-on-Hudson, New York, and Chicago, Illinois
Copyright 1936 by World Book Company. Copyright in Great Britain. All rights reserved
1. The Great Stone Face was on — 1 a hard-hearted landlord 2 a schoolmaster 3 a minister 4 a mountain 5 the front of a church ........................................ 1
2. The friendship of David and Jonathan is told in — 1 the Bible 2 Rab and His Friends 3 Adventures in Friendship 4 The Prince of India 5 The Last Days of Pompeii 2
3. Which word forms the plural by adding -s? 1 solo 2 potato 3 zero 4 dynamo 5 albino ....................................................... 3
4. The misspelled word is — 1 impel 2 arraign 3 assault 4 slippery 5 obliging ................................................................. 4
5. The word homicide means — 1 disinfectant 2 in agreement 3 manslaughter 4 homelike 5 native ........................................ 5
6. The misspelled word is — 1 sufficient 2 restrain 3 external 4 believe 5 entertain ........................................................... 6
7. A compound personal pronoun is — 1 anyone 2 another 3 someone 4 each other 5 ourselves ........................................ 7
8. The word impertinent means — 1 impatient 2 evasive 3 unexpected 4 halting 5 saucy ......................................................... 8
9. An example of an adverb is — 1 great 2 truly 3 secure 4 holy 5 wide ................................................................. 9
10. The stories of Br'er Rabbit were told by — 1 grandmother 2 an old Negro man 3 a Negro mammy 4 a little boy 5 a big sister 10
11. Which of the following is an adjective? 1 beautifully 2 happy 3 nearly 4 chiefly 5 very much 11
12. The Jungle Books were written by — 1 Edgar Rice Burroughs 2 Theodore Roosevelt 3 Bret Harte 4 Rudyard Kipling 5 John Masefield 12
13. The misspelled word is — 1 conscious 2 receives 3 courteous 4 parasites 5 dispises ......................................................... 13
14. The popular historian of colonial New York was — 1 Cooper 2 Otis 3 Irving 4 Mark Twain 5 O. Henry 14
15. The Ancient Mariner was written by — 1 Addison 2 Scott 3 Coleridge 4 Byron 5 Macaulay 15
16. Mood is a property of — 1 nouns 2 pronouns 3 adjectives 4 verbs 5 adverbs ......................................................... 16
17. O Captain! My Captain! was written by — 1 Longfellow 2 Lowell 3 Poe 4 Whitman 5 Field 17
18. The river Styx symbolizes — 1 death 2 night 3 paganism 4 self-indulgence 5 poverty ....................................................... 18
19. An interrogative pronoun is — 1 which 2 where 3 how 4 when 5 why ................................................................. 19
20. The word homogeneous means — 1 home loving 2 manlike 3 of the same kind 4 simultaneous 5 nomadic .................................................. 20
21. Nokomis was the — 1 mother of Uncas 2 wife of Hiawatha 3 sweetheart of John Smith 4 daughter of the moon 5 mother of Minnehaha 21
22. Which word is the antonym for spacious? 1 expansive 2 broad 3 crowded 4 thin 5 closed .................................................. 22
23. Ichabod Crane came to grief through — 1 a woman 2 a bicycle 3 indigestion 4 laziness 5 a pumpkin ........................................ 23
24. The Hoosier Poet was — 1 James Whitcomb Riley 2 Eugene Field 3 Edgar Allan Poe 4 James Russell Lowell 5 Edgar A. Guest 24
25. The Minotaur was a — 1 castle 2 half man, half beast 3 Bible character 4 Norse god 5 magic lake ........................................ 25
26. Westward Ho! tells of the struggle for naval and colonial supremacy between England and Spain. The author was — 1 Molière 2 Victor Hugo 3 Thomas Hardy 4 Charles Kingsley 5 Lew Wallace 26
27. The word ludicrous means — 1 free flowing 2 noisy 3 oily 4 ridiculous 5 precarious ..................................................... 27
28. The word ingenious means — 1 unsophisticated 2 insincere 3 unreal 4 spurious 5 hesitantly ........................................ 28
29. Horatius at the Bridge was written by — 1 Holmes 2 Carlyle 3 Macaulay 4 Burns 5 Byron 29
30. The Four Horsemen of the Apocalypse was written by — 1 Ibsen 2 Ibañez 3 Cather 4 Röswag 5 Sinclair 30

(3)
1. The first permanent English settlement in America was —
   1 Boston  2 New York  3 Plymouth  4 Jamestown  5 Providence  

2. Every President of the United States upon entering office chooses ten secretaries for his —
   1 Cabinet  2 Supreme Court  3 ambassadors  4 Shipping Board  5 Electoral College  

3. The man who built the Ark was —
   1 Adam  2 Noah  3 Moses  4 Samson  5 Abraham  

4. Christopher Columbus was born in the city of —
   1 Genoa  2 Naples  3 Lisbon  4 Venice  5 Constantinople  

5. The powerful secret organization in the South during the Reconstruction Period was the —
   1 Ku Klux Klan  2 Masons  3 Mormons  4 Copperheads  5 Carpetbaggers  

6. The first Pilgrims were brought to America in the ship —
   1 Santa Maria  2 Trent  3 Mayflower  4 Half Moon  5 Monitor  

7. Although the Puritans had suffered much persecution, they would not tolerate those who differed in —
   1 politics  2 religion  3 education  4 wealth  5 race  

8. The number of Senators from each state is —
   1 2 2 3 4 4 5 

9. The commander of the first expedition to circumnavigate the globe was —
   1 Balboa  2 Drake  3 Columbus  4 Magellan  5 Hudson  

10. The man who marched from Atlanta to the sea was —
    1 Sherman  2 Grant  3 Sheridan  4 Thomas  5 Lee  

11. Of the five diseases following, the one which threatens modern civilization most is —
    1 cancer  2 diphtheria  3 scarlet fever  4 tuberculosis  5 smallpox  

12. On New Year's, 1863, was published the —
    1 Declaration of War  2 Bill of Rights  3 Declaration of Independence  4 Monroe Doctrine  5 Emancipation Proclamation  

13. The doctrine that the United States should avoid “entangling alliances” was enunciated by —
    1 Hamilton  2 Adams  3 Clay  4 Washington  5 Wilson  

14. The practice of elected officials’ rewarding supporters with positions is called the —
    1 patron system  2 franking system  3 spoils system  4 civil service  5 laissez-faire system  

15. The chief American grain exchange is located in —
    1 New York  2 Duluth  3 Winnipeg  4 Chicago  5 Kansas City  

16. A battle of the Revolutionary War was —
    1 Saratoga  2 Bull Run  3 San Juan Hill  4 Antietam  5 Fort Duquesne  

17. The numerals 1, 2, 3, etc., originated in —
    1 Rome  2 Arabia  3 Greece  4 Egypt  5 Turkey  

18. Germany's first military move in 1914 was the invasion of —
    1 France  2 Italy  3 Belgium  4 Holland  5 Serbia  

19. An early Bolsheviki leader was —
    1 D'Annunzio  2 Lenin  3 Viviani  4 Poincaré  5 Ebert  

20. Martin Luther was a —
    1 missionary  2 scientist  3 philosopher  4 soldier  5 reformer  

21. A naval commander of the Revolutionary War was —
    1 Farragut  2 Hobson  3 Dewey  4 Jones  5 Leigh  

22. The doctrine of laissez-faire in business means most nearly —
    1 government regulation  2 government ownership  3 free competition  4 price fixing  5 monopoly  

23. States authorize corporations to engage in business by —
    1 licenses  2 franchises  3 bylaws  4 charters  5 decrees  

24. The fundamental unit of society is the —
    1 individual  2 community  3 state  4 family  5 nation  

25. Four basic social institutions are the family, church, school, and —
    1 theater  2 press  3 state  4 railroads  5 labor unions  

26. The Sherman Act was an attempt to regulate —
    1 railroads  2 banks  3 labor prices  4 unfair monopolies  

27. A country which has maintained a constitutional government since the World War is —
    1 Italy  2 Switzerland  3 Spain  4 Chile  5 Hungary  

28. The United States, in contrast with European powers, favors —
    1 balance of power  2 covenants, openly arrived at 3 laissez-faire policy  4 protectorates for weak nations  5 secret diplomacy  

29. A bank lists as liabilities its —
    1 loans and discounts  2 cash on hand  3 capital stock  4 real estate  

30. The Disarmament Conference of 1921 met in —
    1 Washington  2 Geneva  3 The Hague  4 Paris  5 London
MATHEMATICS

1. \(6r + r - 8r = \)
   \(\text{\(\begin{array}{llllll}
   1 & 2 & 3 & 4 & 5 & 6 \\
   r & -2r & -r & -15r & 2r
   \end{array}\)}\) .......................... 1

2. A plane figure bounded by three straight lines is a —
   \(\text{\(\begin{array}{llllll}
   1 & 2 & 3 & 4 & 5 & 6 \\
   \text{sector} & \text{pyramid} & \text{rhombus} & \text{trapezoid} & \text{triangle}
   \end{array}\)}\) ............................................. 2

3. If \(5x - 2 = 13\), \(x = \)
   \(\text{\(\begin{array}{llllll}
   1 & 2 & 3 & 4 & 5 & 6 \\
   2.2 & 5 & 3 & 11 & 15
   \end{array}\)}\) ............................................. 3

4. Two lines lying in the same plane that will never meet however far produced are said to be —
   \(\text{\(\begin{array}{llllll}
   1 & 2 & 3 & 4 & 5 & 6 \\
   \text{oblique} & \text{transversals} & \text{parallel} & \text{perpendicular} & \text{diagonal}
   \end{array}\)}\) ............................................. 4

5. The number of days in \(m\) weeks is —
   \(\text{\(\begin{array}{llllll}
   1 & 2 & 3 & 4 & 5 & 6 \\
   m & 7m & m/7 & \frac{7}{m} & m + 7
   \end{array}\)}\) ............................................. 5

6. The factors of \(9d^2 - 24d + 16\) are —
   \(\text{\(\begin{array}{llllll}
   1 & 2 & 3 & 4 & 5 & 6 \\
   (3d + 4)(3d - 4) & (3d - 4)(3d - 4) & (3d + 4)(3d + 4)
   \end{array}\)}\) ............................................. 6

7. \(9m^2 - 4n^2 = \)
   \(\text{\(\begin{array}{llllll}
   1 & 2 & 3 & 4 & 5 & 6 \\
   (3m - 2n)^2 & (9m - 4n)(3m + 2n) & (3m - 2n)(3m - 2n)
   \end{array}\)}\) ............................................. 7

8. The line joining two opposite vertices of a quadrilateral is the —
   \(\text{\(\begin{array}{llllll}
   1 & 2 & 3 & 4 & 5 & 6 \\
   \text{altitude} & \text{transversal} & \text{diagonal} & \text{median} & \text{bisector}
   \end{array}\)}\) ............................................. 8

9. Vertical angles are —
   \(\text{\(\begin{array}{llllll}
   1 & 2 & 3 & 4 & 5 & 6 \\
   \text{supplementary} & \text{complementary} & \text{acute} & \text{equal} & \text{right angles}
   \end{array}\)}\) ............................................. 9

10. \((2y - 2)^2 = \)
    \(\text{\(\begin{array}{llllll}
      1 & 2 & 3 & 4 & 5 & 6 \\
      4y^2 - 4y + 4 & 4y^2 + 4y + 4 & 4y^2 - 8y + 4 & 4y^2 - 4 & 4y^2 - 8y + 4
    \end{array}\)}\) ............................................. 10

11. Two circles having the same center are said to be —
    \(\text{\(\begin{array}{llllll}
      1 & 2 & 3 & 4 & 5 & 6 \\
      \text{tangent} & \text{congruent} & \text{concentric} & \text{similar} & \text{proportional}
    \end{array}\)}\) ............................................. 11

12. Two angles that have the same vertex and a common side between them are called —
    \(\text{\(\begin{array}{llllll}
      1 & 2 & 3 & 4 & 5 & 6 \\
      \text{complementary} & \text{supplementary} & \text{vertical} & \text{adjacent} & \text{opposite}
    \end{array}\)}\) ............................................. 12

In the six exercises following, choose the proper equation for use in solving the problem.

13. **Problem.** If a 35-foot rope is to be cut into two parts so that one part is 7 feet longer than the other, how long will the shorter piece be?
    \(\text{\(\begin{array}{llllll}
      1 & 2 & 3 & 4 & 5 & 6 \\
      35 + 7 = x & x + 7 = 35 & x + (x + 7) = 35 & 7x = 35
    \end{array}\)}\) ............................................. 13

14. **Problem.** A 20-foot ladder is leaning against a wall, with the bottom of the ladder 6 feet from the wall. How far above the ground is the top of the ladder?
    \(\text{\(\begin{array}{llllll}
      1 & 2 & 3 & 4 & 5 & 6 \\
      x = 6 + 20 & x = 20 - 6 & x = 6^2 + 20^2 & x^2 = 6^2 + 20^2
    \end{array}\)}\) ............................................. 14

15. **Problem.** Frank has 100 yards of fencing with which to enclose a rectangular garden so that the length of the garden will be 10 yards more than the width. How wide should he make the garden?
    \(\text{\(\begin{array}{llllll}
      1 & 2 & 3 & 4 & 5 & 6 \\
      x + 10 = 100 & x + (x + 10) = 100 & x + (x - 10) = 100
    \end{array}\)}\) ............................................. 15

16. **Problem.** A passenger automobile went as far in 8 hours as a truck moving 25 miles an hour more slowly did in 16 hours. How many miles an hour was the passenger auto going?
    \(\text{\(\begin{array}{llllll}
      1 & 2 & 3 & 4 & 5 & 6 \\
      8x = 16(x - 25) & 8x + 16x = 25 & 16x - 8x = 25 & 25x = 8 + 16 & 16x = 25
    \end{array}\)}\) ............................................. 16

17. **Problem.** The original price of a radio was reduced 20% and marked $144. What was the original price?
    \(\text{\(\begin{array}{llllll}
      1 & 2 & 3 & 4 & 5 & 6 \\
      0.20x = 144 & x = -0.20x = 144 & x = 0.20x = 144
    \end{array}\)}\) ............................................. 17

18. **Problem.** It is desired to cut out a rectangular sheet of paper that is 2 inches longer than it is wide and which has an area of 80 square inches. How wide should the paper be?
    \(\text{\(\begin{array}{llllll}
      1 & 2 & 3 & 4 & 5 & 6 \\
      x(x + 2) = 80 & x^2 = 80 + 2 & x^2 + 2 = 80 & 2x + 2 = 80
    \end{array}\)}\) ............................................. 18
26. A sector of a circle is the portion between —
   1. two chords  2. two radii and the intercepted arc
   3. a chord and the diameter  4. a chord and the circumference

27. If \( x^2 - 36 = 0 \), \( x \) equals —
   1. 6  2. 0  3. 36  4. -6  5. \( \pm 6 \)

28. If the supplement of an angle is 130°, its complement is —
   1. 20°  2. 60°  3. 40°  4. 90°  5. 50°

29. The ratio of the hypotenuse is called the —
   1. cosine  2. tangent  3. sine  4. cotangent  5. secant

30. If a chord \( AB \) cuts off an arc of 100°, the angle that the perpendicular bisector of \( AB \) makes with the tangent at \( A \) is —
   1. 30°  2. 45°  3. 60°  4. 90°  5. 120°

SCIENCE

1. Milk is often treated by —
   1. electrolysis  2. distillation  3. calcination  4. oxidation  5. pasteurization

2. Tuberculosis is more often cured by —
   1. a complete change of climate  2. rest, good food, and fresh air
   3. inoculation by vaccine  4. living in a cold climate  5. plenty of exercise taken regularly

3. Diphtheria can be prevented by —
   1. antitetanus vaccine  2. toxoid  3. eating proper foods in a balanced diet  4. boiling all drinking water  5. periodic examination by a physician

4. A gas which supports combustion is —
   1. oxygen  2. hydrogen  3. nitrogen  4. carbon dioxide  5. carbon monoxide

5. The green coloring matter of plants is called —
   1. xanthophyll  2. hemoglobin  3. chromatin  4. chlorophyll

6. Cracks are left between sections of a roadbed in concrete highways to allow for —
   1. erosion  2. contraction  3. evaporation  4. expansion  5. drainage

7. Pasteur discovered a specific treatment for —
   1. smallpox  2. typhoid fever  3. rabies  4. cancer  5. tuberculosis

8. The acid in vinegar is chiefly —
   1. lactic  2. acetic  3. butyric  4. tartartic  5. oxalic

9. An example of a vertebrate animal is the —
   1. amoeba  2. oyster  3. sponge  4. earthworm  5. frog

10. The law of universal gravitation is credited to —

11. The atomic weight of sulphur is —
    1. 32  2. 40  3. 55  4. 80  5. 108

12. The pitch of a tone depends on —
    1. Doppler’s Principle  2. the amplitude of the vibration
    3. the velocity of sound  4. the intensity of sound  5. the frequency of vibration
13. The largest planet is — 1 Neptune 2 Earth 3 Saturn 4 Jupiter 5 Mars

14. Ink spreads in a blotter because of — 1 capillarity 2 osmosis 3 convection 4 diffusion 5 cohesion

15. The fuse in an electric circuit serves to —
   1 increase the intensity of the current 2 stop an excessive flow of current by melting 3 make the current flow more readily 4 do away with the need of a switch 5 hold back the amount of current

16. The enzyme of the saliva is — 1 ptyalin 2 pepsin 3 trypsin 4 lipase 5 emylopsin

17. The negative plate of an electrolysis apparatus is called the —
   1 anode 2 cathode 3 anion 4 grid 5 cation

18. The number of calories required to raise the temperature of a gram of a substance one degree centigrade is called its —
   1 melting point 2 specific heat 3 heat of fusion 4 vapor tension 5 heat of vaporization

19. The velocity of sound in air in feet per second is about —
   1 30 2 3000 3 11,000 4 186,000 5 1100

20. Momentum is measured by the product of mass and —
   1 distance 2 time 3 force 4 velocity 5 acceleration

21. A chemical element found in all proteins but not in carbohydrates or fats is —
   1 oxygen 2 carbon 3 hydrogen 4 nitrogen 5 helium

22. The atomic weight of sodium is — 1 17 2 23 3 35 4 40 5 55

23. The measure of the quantity of matter a given body contains is called its —
   1 density 2 weight 3 energy 4 mass 5 momentum

24. If 273 cc. of a gas at 0° C. is heated to 10° C., its resulting volume will be —
   1 273 cc. 2 283 cc. 3 263 cc. 4 273 cc. 5 2730 cc

25. A centimeter equals about — 1 .04 in. 2.25 in. 3 .4 in. 4 4 in. 5 1.1 yd

26. A disease known to be caused by a protozoan is —
   1 diphtheria 2 tuberculosis 3 pneumonia 4 malaria 5 cancer

27. Silvered glass is used on thermos bottles to —
   1 check convection 2 check evaporation 3 close the pores 4 decrease radiation 5 make glass stronger

28. The greatest mechanical advantage to be had by the use of two movable pulleys is —
   1 1 2 2 3 3 4 4 5 5

29. An example of a dicotyledonous plant is the — 1 lily 2 iris 3 pansy 4 daffodil 5 tulip

30. Relative humidity is often measured by means of — 1 hydraulic presses 2 barometers 3 rain gauges 4 calorimeters 5 hygrometers

STOP!

If you have detached the title page-Answer Sheet from this test booklet, fill in the information asked for below:

Name .......................................................... Age last birthday .............. years
First name, initial, and last name

Birthday .................................................. Teacher ..................................... Grade 9 10 11 12
Month  Day  Draw a circle around the grade you are in.

City ............................................... School ..................................... Date ......... 19
NOMOGRAPH FOR COMPUTING TOTAL SCORE (RIGHT - \( \frac{1}{2} \) WRONG) FROM NUMBER RIGHT AND NUMBER OMITTED OR NUMBER RIGHT AND NUMBER WRONG