

THE RELATION BETWEEN THE INTELLIGENCE OF PUPILS OF  
DIFFERENT NATIONALITIES AND THE ACCOMPLISHMENT OF  
THESE SAME INDIVIDUALS OF DIFFERENT LEVELS OF  
MENTAL ABILITY

by

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## CHAPTER I

### THE PROBLEM AND DEFINITIONS OF TERMS USED

For many years, school administrators have made use of general intelligence tests to determine the capacity of school children to do school work. The scores made on these tests formed the basis for classifying pupils into homogeneous groups. The progress made by the pupils who are grouped according to ability as determined by scores on intelligence tests was not in keeping with the ratings obtained in their daily work or in the examinations. Pupils with high I. Q.'s frequently made low marks in some or all of their school subjects, while the others with low I. Q.'s made high marks. This was no doubt due to the operation of certain factors which were not measured by the tests that were administered, such as, the nationality of the pupils, their natural aptitudes, application, industry, perseverance, antipathy, and environment.

#### I. THE PROBLEM

Statement of the problem. It was the purpose of this study to find out just what relation, if any, exists between intelligence and accomplishment of individuals who have different levels of mental ability but different nationalities.

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Factors involved. In this investigation, the factors chosen for study were: intelligence, class age, mental age, average of grades for each year and for the four years, courses taken, and the following nationalities: Polish, Italian, Lithuanian, German, American (all of the aforesaid being true bloods), and mixed American.

## II. DEFINITIONS OF TERMS USED

True blood. Since a true blood in any nationality is merely a question of time in the life of the individual, in this instance, it is applied to one whose parents and grandparents, at least, were born in their native land. For example, of those classified as Germans both parents and grandparents were born in Germany.

Mixed American. By mixed American herewith is meant a pupil whose mother or father is an American and the other parent, a German, an Irishman, an Italian, or any other nationality.

American. Any pupil whose parents and grandparents, at least, were born in the United States is considered as an American. In this last group, one would almost have to ignore the race aspect entirely, for practically all Americans are of foreign extraction, and it seems to be only a

difference of time.

### III. JUSTIFICATION OF TOPIC

Importance of the study. Much has been written with respect to intelligence tests given and the individual differences found as a result of them. However, not all are agreed as to the factors which are the most common causes of discrepancy between the mental age and the quality of school work. An attempt was made in this study to see what relation there is between the intelligence of those of various nationalities and the accomplishments of these same individuals of different levels of mental ability.

### IV. REVIEW OF PREVIOUS STUDIES

Individual differences. It has been found that, among a large majority of normal children, great individual differences exist in original mental endowment, differences which affect greatly the capacity to profit from school instruction.

Report of findings. Pintner<sup>1</sup> claims that, as our high schools are at present, pupils with intelligence quotients between ninety and one hundred will have great dif-

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<sup>1</sup>Rudolph Pintner, Intelligence Testing ( New York: Henry Holt & Company, 1931 ), p. 289.



ficulty in graduating; while Brigham<sup>2</sup> makes the assertion that the average intelligence of the succeeding groups of immigrants since 1903-1907 has become progressively lower. The conclusion of Cobb<sup>3</sup> is:

Probably in ninety cases out of a hundred it is unwise to guide the average child or less intelligent one into the present academic high school. Unless his I.Q. is over one hundred, or his mental age definitely over fourteen, he should be encouraged to try some other type of training.

Pressey,<sup>4</sup> on the other hand, says that if one is to understand reasonably well those elements that contribute to a pupil's success in school, not only that pupil's ability and intelligence but also his attitude towards his school work, his industry, interest, and deportment must be taken into account.

That mathematics and languages, in general, correlate most highly with school achievement and with general intellectual ability is the belief of Freeman.<sup>5</sup>

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<sup>2</sup>Carl C. Brigham, A Study of American Intelligence (Princeton: Princeton University Press, 1923), p. 112.

<sup>3</sup>Margaret V. Cobb, "The Limits Set to Educational Achievement by Limited Intelligence," Journal of Educational Research, 20: 190, October, 1929.

<sup>4</sup>S. L. Pressey, "An Attempt to Measure the Comparative Importance of General Intelligence and Certain Character Traits in Contributing to Success in School," School Journal, 21: 220, November, 1921.

<sup>5</sup>Frank S. Freeman, Individual Differences-The Nature and Causes of Variations in Intelligence and Special Abilities. (New York: Henry Holt and Company, 1934), p. 291.

That there are enormous significant racial differences in general intelligence and that those with an I. Q. from 80 to 90 are far enough below the average of intelligence among races of western European descent that they are not able, as average children are, either to make just ordinary progress or overcome intellectual difficulties, is the statement of Terman.<sup>6</sup>

Haggerty<sup>7</sup> believes that intelligence in itself is not sufficient to produce success and that it must be combined with other significant traits which are not subject to evaluation by tests that are used as measures of intelligence.

Pupils who rank low on mental tests but high in school marks are found by Miner<sup>8</sup> to be industrious, dependable, cooperative, and conscientious; while Bright<sup>9</sup> attributes the discrepancy between low I. Q.'s and medium scholarship to interest, application, and attention.

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<sup>6</sup>L. Lyman Terman, The Measurement of Intelligence, ( Boston: Houghton Mifflin Company, 1919 ), P. 92.

<sup>7</sup>M. E. Haggerty, "Measuring Human Capacity," Journal of Educational Research, 3:246-247, April 1921.

<sup>8</sup>J. B. Miner, "Scholarship and Intelligence" Personnel Journal, 6:113-118, July, 1927.

<sup>9</sup>I. J. Bright, "A Study of the Correlations Obtained between Academic Grades and Citizenship and between Academic Grades and Intelligence Quotients." (Leavenworth: Leavenworth Public Schools, Leavenworth, Kansas, 1930).

Hughes<sup>10</sup> seems to hold the same opinion, while Gates<sup>11</sup> thinks that the combined efforts of school and home emphasis on particular subjects explain the difference between I. Q. and school marks.

"Pupils who rank low on mental ability tests but high in school marks," says Miller,<sup>12</sup> "are students with pleasing personalities, and in all cases such students are industrious, courteous, cooperative, dependable, and conscientious."

Turney,<sup>13</sup> agrees with Miller, but adds perseverance and ambition; while Fleming<sup>14</sup> affirms that, next to estimated intelligence, the most important factor with regard to scholarship is school attitude, followed by industry, or will and persistence.

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<sup>10</sup>W. Hardin Hughes, "Organized Personnel Research and its Bearing on High School Problems," Journal of Educational Research, 10: 386, December, 1924.

<sup>11</sup>A. I. Gates, "The Correlation of Achievement in School Subjects with Intelligence Tests and other Variables," Journal of Educational Psychology, 13: 129-139, March, 223-235, April, 277-292, May, 1922.

<sup>12</sup>W. S. Miller, "The Variation and Significance of Intelligence Quotients Obtained from Group Tests," Journal of Educational Psychology, 15: 359-366, September, 1924.

<sup>13</sup>A. H. Turney, Factors other than Intelligence that Affect Success in High School. (Minneapolis: The University of Minnesota Press, 1930.)

<sup>14</sup>C. W. Fleming, A Detailed Analysis of Achievement in High School. (Teachers College Contributions to Education, No. 196. New York: Teachers College, Columbia University, 1925). P. 185.

In 1909, Ayres<sup>15</sup> made the statement that no facts had been given to show what races were best in our schools and which ones worst; but in 1921, he added that the evidence was clear to show how the language superiority of the American pupil placed him at an advantage during his school course.

#### V. SCOPE AND LIMITATIONS

Scope. The intention of the investigator was to ascertain: (1) which nationality of those selected, namely, true blood Germans, Polish, Italians, Lithuanians, Americans, and mixed Americans shows the closest relation between its intelligence quotient and the scholastic work accomplished; (2) whether the work of the pupils is affected to any great degree by nationality; (3) what means could be used either to offset or to overcome the difficulties encountered because of nationality.

Limitations. When the attempt was made to locate pupils of the aforesaid nationalities in schools supposedly

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<sup>15</sup>Leonard P. Ayres, *Laggards in Our Schools*, (New York: Russell Sage Foundation, Charities Publication Committee, 1909), p. 106.

representative of a particular nationality, it was discovered that the school did not really have two hundred students of the particular nationality. For example, in a school in which the Italians supposedly predominated only fifty-five students of Italian parentage were found. An accurate investigation, therefore, made it necessary to seek the data for the remaining number in other schools. This condition was also found when data were gathered for the true bloods among the Americans and the Germans.

## VI. ORGANIZATION

Procedure. Chapter II gives a detailed account of the nationalities observed, the choice of schools, and the reason for the choice, the procedure followed, and the information as to the results of the investigation.

Organization. In Chapter III, there is found the distribution of the mental ages of the various groups selected, their class ages at the time of enrollment, and the average of their grades for the four years. Chapter IV shows the range of the I. Q.'s for these same groups, the per cent of distribution for each nationality, the school standards for the distribution of grades with a comparison of the I. Q.'s and the grades. Chapter V compares school aver-

ages with I.Q.'s, gives the distribution of pupils selected on a basis of high I.Q. and low I.Q., and makes a comparison of grades and nationalities. Chapter VI briefly summarizes the findings, gives recommendations and suggestions for further study.

## CHAPTER II

### DETAILED METHOD OF PROCEDURE

This chapter treats, in detailed manner, the method of procedure followed in obtaining the desired data for this study, the nationalities observed, the choice of schools, the reason for this selection, and the material used.

Nationalities. For this study of the relationship which exists between intelligence and the accomplishment of individuals of various levels of mental ability among certain nationalities, the following nationalities were considered: mixed Americans, true blood Americans, Germans, Polish, Lithuanians, and Italians.

Schools selected. These seven schools were selected on a basis of nationalities: Providence High, Chicago, that has an enrollment of 1,190 girls, and whose graduating class of approximately two hundred sixty each year, is representative of diverse nations; St. Casimir High, Chicago, a private school for girls, whose enrollment is around three hundred seventy-five, including a senior class of about eighty each year, has chiefly Lithuanians; Holy Trinity High, Chicago, with an attendance of about two hundred fifty, and a graduating class each year of close to forty, has mainly Polish boys; Marshall Public High, Chicago, with an

enrollment of five thousand, and a senior class of approximately five hundred, has Italians and Jews representing the vast majority; Catholic Central High, Fort Wayne, Indiana, whose enrollment is around 1,190 boys and girls, with a graduating class of about two hundred thirty each year, has a large number of true blood Americans; Reitz Memorial High, Evansville, Indiana, with an attendance of close to seven hundred boys and girls, and a senior class of approximately eighty boys and girls each year, has chiefly true blood Germans, but the data concerning girls only were used; Jasper Public High, Jasper, Indiana, with an attendance of about three hundred, and a senior class of about sixty, furnished the data for the remainder of true blood Germans which were needed.

Procedure followed and material used. A form ( see Appendix ) was sent to each of the foregoing schools to be filled out by the graduates. When these forms were returned, they were sorted carefully according to nationalities, whether true blood, or mixed, and for expediency they were arranged alphabetically. The schools in Chicago were then visited for the purpose of studying and obtaining, from the school files, the following data: the intelligence quotient, the class age, and the mental age at the time of enrollment, the yearly average in each subject studied, the length of



time devoted to each subject, the grades obtained in these subjects, and the average for the four years' work.

These investigations proved that two or more graduating classes would have to be studied to obtain the required two hundred of each nationality. Furthermore, confirmation of data regarding nationalities was obtained from the principals who had been heads of their respective schools for a period of from ten to twenty years, and who were, therefore, fully cognizant of family histories. In view of this situation, it may be necessary to state that data were gathered concerning the classes of 1939 and 1940 together with the class of 1941. With regard to true blood Americans, however, the investigator obtained from the files at Providence High, Chicago, data for the past five years, that is from 1937 to 1941 inclusive.

On account of the distance, the time required, the lack of considerable free time, and the urgency of teaching duties, it was impossible to go to Evansville or Jasper for the required data; consequently, a teacher was employed in each of these schools. With the permission of the respective principal, the teacher, in accord with specified directions, obtained the data from the files and forwarded the information obtained.

## CHAPTER III

### DISTRIBUTION OF CLASS AGES, MENTAL AGES, AND CLASS AVERAGES FOR THE FOUR YEARS

The subject matter of this chapter is the distribution of the chronological and mental ages of one thousand two hundred senior high school pupils. These one thousand two hundred pupils include two hundred true bloods of each of the following: Americans, Germans, Polish, Lithuanians, Italians, and two hundred mixed Americans. The distribution of the class average for each pupil, for the four years, is also stated.

#### PURPOSE OF THE STUDY

The purpose of this study is to determine: (1) how closely the mean (M) of one of these nationalities may come to the mean (M) of another nationality; (2) whether the mental ages are affected by nationality; (3) whether the class average for the four years varies according to nationality, and how much.

#### DISTRIBUTION OF CHRONOLOGICAL AGES

Technique used. The class ages of these one thousand two hundred pupils, at the time of their enrollment in the

ninth grade, were tabulated, beginning with the lowest age, twelve years, and extending up to the highest age, sixteen and a half years to seventeen years, with intervals of six months, as shown in Table 1. According to the data found, the class ages range from one of twelve years in the Lithuanian group to one each, in the German and in the American group, and to three in the Polish group of sixteen and a half to seventeen years. While the Lithuanians have one in the lowest class age group, twelve to twelve and a half years; they likewise have one between the ages of sixteen and sixteen and a half years. On the other hand, the American, the German, and the Polish groups, Figures 5, 3 and 2, show the numbers one, one, and three, respectively, in the age group, sixteen and a half to seventeen years. Moreover, the Polish have the largest number in this group.

Results. Of the various nationalities considered, each nationality has the largest number in the group, fourteen to fourteen and a half years, with a variation, however, of fifty-one Lithuanians to ninety-five mixed Americans. The Polish and Lithuanians, Figures 2, and 4, have approximately the same number in this group, fifty-one and fifty-four. Similarity is evident in the German, and in the Italian groups, which number eighty-five and eighty-four; the American group comes in between with seventy, Figures 3, 1, and 5.

A study of all of the nationalities was then made to determine the middle fifty per cent; it was determined in this manner: by counting up fifty from the lowest frequency, and again counting up one hundred fifty from this same frequency. Since the total number studied in each group was two hundred, the remainder is the other hundred, or the middle fifty per cent (the number that is between the lower fifty frequency, and the upper one hundred fifty frequency). Take the Lithuanians for a type. According to Table I, page eighteen, the middle fifty per cent lies between the fourteen and the fifteen year age group, with one pupil above in the fifteen to fifteen-five year group, and one below, in the thirteen-six to thirteen-eleven year group. Among the Polish, however, about one-third of the middle fifty per cent is in the group fourteen to fourteen-five, with approximately one-fifth in the age-group fifteen to fifteen-five, and the remainder in the group fourteen-five to fourteen-eleven.

The Italian group and the German group seem to be very close in the middle fifty per cent, for they have almost the same number, eighty-four and eighty-five, in the age-group fourteen to fourteen-five, with one each in the age-group thirteen-six to thirteen-eleven, and approximately fifteen per cent in the age-group fourteen-six to fourteen-

eleven, as shown in Table 1, page 18.

The Americans have more in the age-group fourteen to fourteen-five, than either the Lithuanian group or the Polish group, but about seventy-five per cent fewer than either the German group or the Italian group.

The mixed Americans, however, have comparatively a much larger number in the middle fifty per cent, in the age-group fourteen to fourteen-five, with approximately thirty per cent of the middle fifty per cent, in the age-group thirteen-six to thirteen-eleven. The Germans, the Lithuanians, and the Italians are the only nationalities of all these groups that had some in the thirteen-six to thirteen-eleven group, while the first two groups had but one each, and the last group had three.

It is true that the middle fifty per cent of all groups was found in the age-group between fourteen and fifteen years; yet about forty per cent of this same fifty per cent middle group was found among the age-group fourteen to fourteen-five in the mixed American, the German, and the Italian section.

From the investigation, one expects to find the largest number in the age-group fourteen to fourteen-five, and a few in the thirteen to thirteen-five group, for those are

the normal ages at which pupils enter high school, pre-supposing that the child starts to school at six and has not attended kindergarten. When a child enters high school at the age of twelve or twelve and a half years, he is recognized as having superior intelligence. The study reveals that pupils of each nationality, excepting the mixed Americans, entered high school at the age, fifteen and a half to sixteen and a half years, and that the German and the American group had one each in the age-group, sixteen and a half to sixteen-eleven, and the Polish group had three. This condition may be explained in several ways: these pupils may have entered school at a later age than six years; they may have been retarded in their studies in the lower grades because of lack of preparation, or prolonged absence, on account of illness or repeated absence through their own fault or the fault of others; a change of residence might have caused the retention of these pupils in the same grade, or the placing of them in a lower grade, since they are not up to the work of their classes; home environment may have been most unfavorable to study; difficulty with the English language, in those instances where a foreign language is spoken in the home, may have been a factor; and an antipathy to an individual teacher or teachers or to a subject or subjects may have constituted a contributing cause.

TABLE I

DISTRIBUTION OF CHRONOLOGICAL AGES OF 1200 SENIOR  
HIGH SCHOOL PUPILS OF VARIOUS NATIONALITIES AT  
THE TIME OF THEIR ENROLLMENT IN FRESHMAN YEAR

Years- Mos.	N A T I O N A L I T I E S					
	T R U E		B L O O D S			
	Italians	Polish	Germans	Lithu- anians	Ameri- cans	Mixed Americans
16-6		3	1		1	
16-	1	7	3	1	2	
15-6	11	20	5	20	7	
15-	20	39	28	30	32	5
14-6	31	47	27	47	44	31
14-	84	54	85	51	70	95
13-6	24	20	21	38	35	48
13-	24	9	29	10	8	19
12-6	5	1	1	2	1	2
12-				1		
<b>Total</b>	200	200	200	200	200	200

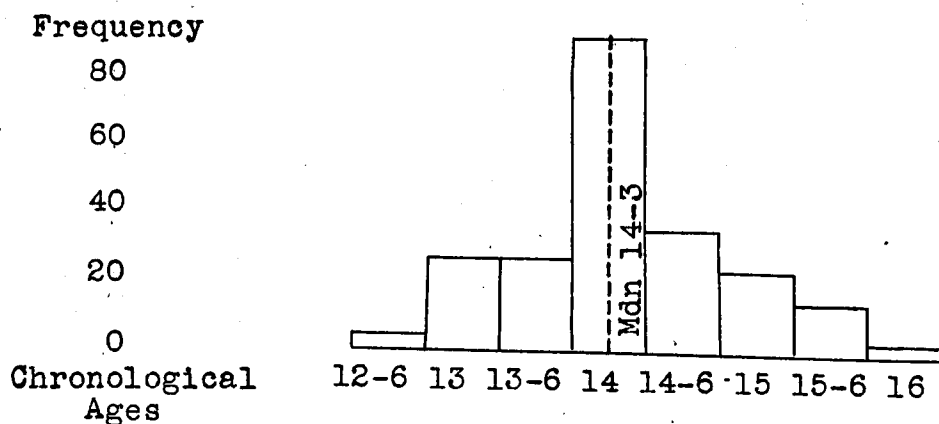


FIGURE 1  
ITALIANS

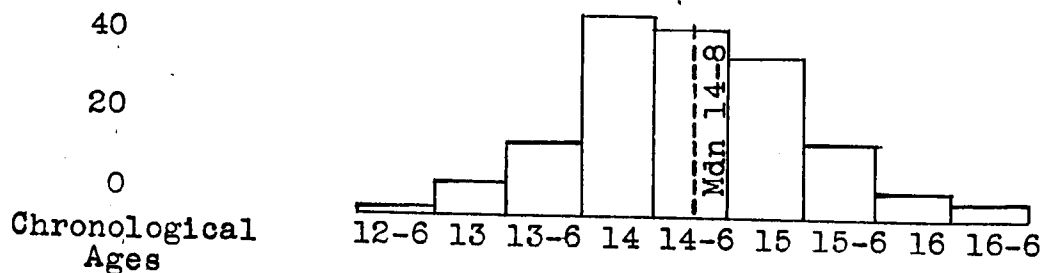


FIGURE 2  
POLISH

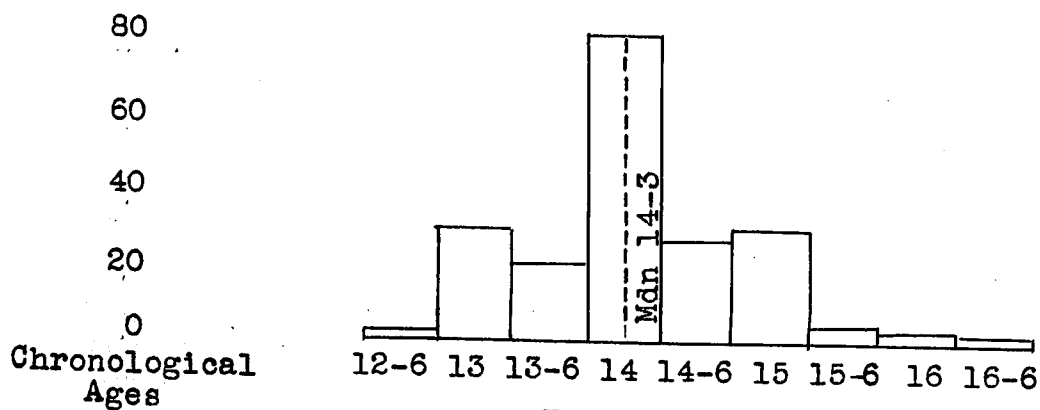


FIGURE 3  
GERMANS

DISTRIBUTION OF THE CHRONOLOGICAL AGES OF 200 OF EACH  
OF THE ABOVE NATIONALITIES



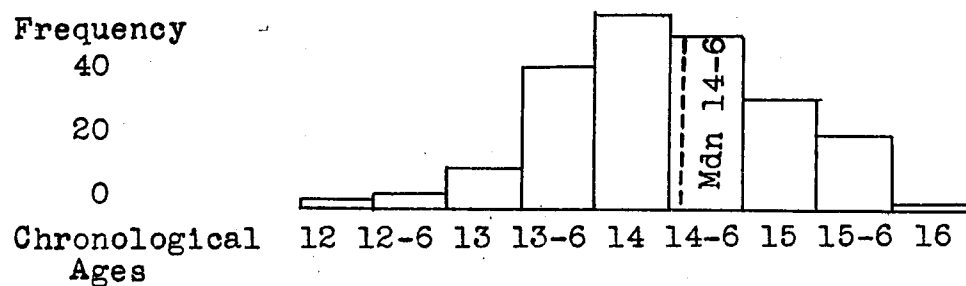


FIGURE 4  
LITHUANIANS.

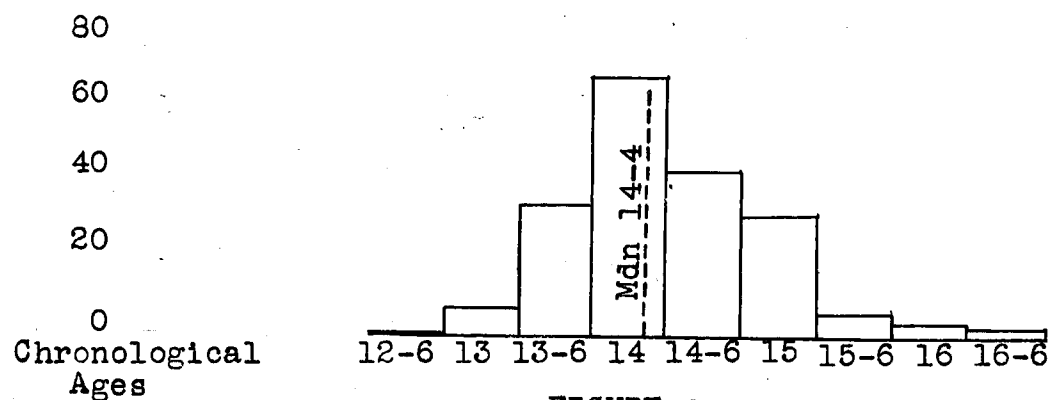


FIGURE 5  
AMERICANS

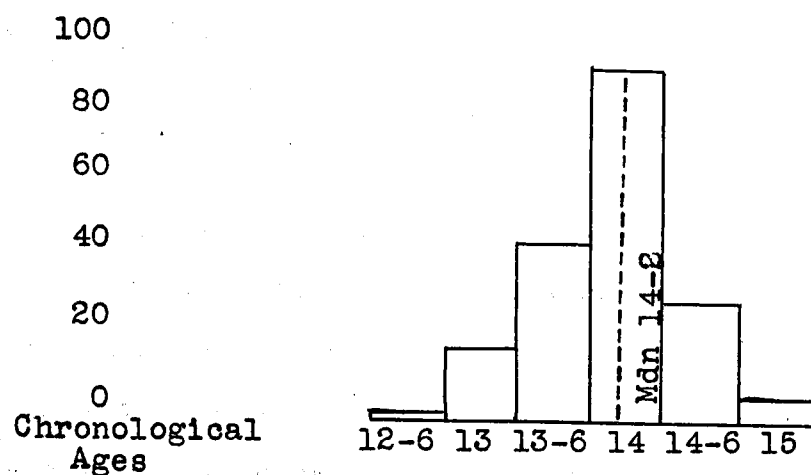


FIGURE 6  
MIXED AMERICANS

DISTRIBUTION OF THE CHRONOLOGICAL AGES OF 200 OF EACH  
OF THE ABOVE NATIONALITIES

## MEASURES OF CENTRAL TENDENCY

Mean and median. The measures of central tendency used, include the mean (M), and the median (Mdn). The mean was used because it has the highest reliability in a measure of central tendency and it permits the computation of measures of variability. It is an average of a series of numbers.

Median. The median is less reliable, but it makes computation easier and quicker. Moreover, it is steady, and is a measure of the central group. The median is a theoretical point on the scale, halfway between the two middle numbers, on each side of which there are fifty per cent of the numbers.

## MEASURES OF VARIABILITY

Measures used. The quartile deviation (Q) and the standard deviation (SD) were used because the former measures the average distance from the median of quartile<sub>3</sub> and quartile<sub>1</sub>. Again, the quartile deviation locates the position where fifty per cent of the numbers will probably fall; whereas, the standard deviation indicates about one-half the spread of the middle two-thirds of the cases, and it is more reliable than the quartile deviation. It is

based on the square root of the summation of the frequency (f) times the distance squared ( $d^2$ ), divided by the total number (N) of cases, less the correction squared ( $c^2$ ), and this result multiplied by the step interval (i). The quartile deviation is the difference between quartile<sub>3</sub> ( $Q_3$ ) and quartile<sub>1</sub> ( $Q_1$ ), divided by two.  $Q = \frac{Q_3 - Q_1}{2}$   $SD = \left( \left( \frac{fd^2}{N} - c^2 \right)^{1/2} \right) i$

Quartile<sub>3</sub> is obtained by counting up one hundred fifty from the bottom frequency, in the frequency distribution column, just as quartile<sub>1</sub> is obtained by counting up fifty from this same bottom frequency. Citing the Lithuanians as an example, we have the following:

Years- Mos.	fre- quen- cy (f)	dis- tance (d)	frequency times distance (fd)	frequency times distance squared (fd <sup>2</sup> )
16-6				
16-11	--	--	--	--
16-				
16-5	1	4	4	16
15-6				
15-11	20	3	60	180
15-				
15-5	30	2	60	180
14-6				
14-11	47(98)	1	47(171)	47
14-				
14-5	51	0	0	
13-6				
13-11	38	-1	-38	38
13-				
13-5	10	-2	-20	40
12-6				
12-11	2	-3	-6	18
12-				
12-5	1 (51)	-4	-4 (-68)	16
	N=200		$\sum fd=103$	$\sum fd^2=475$

$M' = 14-3$  or 171 months. This is the guessed mean.

$c = \frac{103}{200} = .515$        $c$ , is the correction, in terms of class intervals.

$C = \left(\frac{\sum fd}{N}\right) i = (.515)6 = 3.09$        $i$ , is the class interval.

$M = (14-3) - (3.09) = 14-6$ .      Fourteen years, six months is considered the true mean.

$Mdn = 100-98 = 2$       The upper frequency 98 is taken from 100.

$(14-6) - \left(\frac{2}{51}\right)6 = 174 \text{ mos.} - .235 = 173.765$  or 14 years-6 mos.

$100-51 = 49$       The lower frequency 51 is taken from 100.

$14 + \left(\frac{49}{51}\right)6 = 168 \text{ months} + 5.765 = 173.765$  or 14 years - 6 mos.

$Q_3 = 15-6(180 \text{ mos.}) + \left(\frac{1}{31}\right)6 = 180.2 \text{ mos.}$  or 15 years.

$Q_1 = 13-6(162 \text{ mos.}) + \left(\frac{37}{38}\right)6 = 162 + 5.84 = 167.84 \text{ mos.}$  or 13 years - 11 months.

$Q = \frac{Q_3 - Q_1}{2} = \frac{15 - (13-11)}{2} = \frac{13 \text{ mos.}}{2} = 6.5 \text{ mos.}$

$SD = \left(\sqrt{\frac{475}{200} - .26}\right)6 = (1.45)6 = 8.7$

The measures of central tendency that is the mean and the median were computed for each nationality, and tabulated as shown in Table II. Both the mean and the median are the highest for the Polish group, 14-8, and the lowest for the mixed American group, 14-1, and 14-2; likewise, a similarity is noted in the measures of variability, quartile<sub>3</sub> and quartile<sub>1</sub>, which indicate the Polish group highest with

15-3, and 13-2, and the mixed American group lowest, with 14-5, and 13-9, showing a difference of ten months for quartile<sub>3</sub>, and a difference of five months for quartile<sub>1</sub>. Though the mean and the median of the mixed Americans show a difference of but one month, these two measures remain the same for the Polish group. The difference between quartile<sub>3</sub> and quartile<sub>1</sub> of the Polish group is but one year and one month; whereas, the difference between the quartiles of the mixed Americans is just eight months. Figures 2, and 6, pages nineteen and twenty, show the comparison of the distribution of the chronological ages of these two nationalities, with each median indicated.

According to the measures of central tendency and the measures of variability, the Lithuanians rank second, with their mean and their median of 14-6 each, and the quartile<sub>3</sub>, of 15 years, with the quartile<sub>1</sub> of 13-11. The mean and the median of the Lithuanian group are slightly lower than those of the Polish group, but they vary from one to five months for those of the American, the German, the Italian, and the mixed American groups. Since this difference is slight, it necessarily follows that the quartile deviation varies but little for these same groups.

The Americans rank third highest in this same distri-

bution of class age in the measures of central tendency and variability, with a quartile<sub>3</sub>, of 14-10, and a quartile<sub>1</sub> of 14-; therefore the quartile deviation is not very high. It is exactly the same for the German group, 5.0, and the standard deviation of the American group is the same as that of the Italian group, 7.70.

Figures 3 and 1, page nineteen, show that the German and the Italian groups are approximately similar in all their groups for class age distribution; the only exception is that in these measures of central tendency and variability, quartile<sub>3</sub> for the German group varies but one month from that of quartile<sub>3</sub> of the Italian group, Table II, page twenty-six. Also, the standard deviation for the German group is slightly higher than that of the Italian group. However, in regard to the mean, the median, and also quartile<sub>1</sub>, they are exactly the same for both the German group and the Italian group.

The standard deviation, as well as the quartile deviation of the mixed American group, is the lowest of all the groups; the former is 5.76, and the latter is 4.0, just 0.5 lower than that of the Italian group, and 1.0 lower than the quartile deviation of the American and the German group.

Since chronologically, the Polish pupils had more in

TABLE II

THE MEDIAN, THE MEAN, THE UPPER AND THE LOWER QUANTILES  
OF THE CHRONOLOGICAL AGES OF 1200 SENIOR HIGH SCHOOL  
PUPILS OF VARIOUS NATIONALITIES AT THE TIME OF  
THEIR ENROLLMENT IN THE FRESHMEN YEAR

Measures	N A T I O N A L I T I E S					
	T R U E		B L O O D S		American	Mixed American
	Italian	Polish	German	Lithu- anian		
Quartile <sub>3</sub>	14-8	15-3	14-9	15-	14-10	14-5
Median	14-3	14-8	14-3	14-6	14-4	14-2
Quartile <sub>1</sub>	13-11	14-2	13-11	13-11	14-	13-9
Mean	14-4	14-8	14-4	14-6	14-4	14-1
Q	4.5	6.5	5.0	6.5	5.0	4.0
SD	7.7	9.06	8.46	6.33	7.7	5.76

the age-group 15- to 15-11, or approximately five per cent at the time of their enrollment, therefore, it is to be expected that the ages for the measures of central tendency and variability would be higher for them; likewise, since the mixed Americans had only two and a half per cent in their highest age-group, 15- to 15-5, consequently, these measures are lower.

This leads to the deduction that the mixed Americans start to grade school at the normal age of six years, progress steadily, and in some instances, rapidly. Only a few are retarded.

#### DISTRIBUTION OF MENTAL AGES

Procedure. The method of tabulating the distribution of the mental ages of these twelve hundred senior high school pupils of various nationalities was practically the same as that for the distribution of the chronological ages, with this exception, that the range begins with the age of ten years and extends to twenty-one years.

That the greatest range of mental ages is found among the Lithuanians is evident from Table III. Therein, are found three in the age-group, 10- to 10-5, and two in the age-group, 19- to 19-5. The Lithuanians, moreover, are surpassed in the lowest age-group, by the Italians, who have



a frequency of four; whereas, the only other nationality represented, the German, has but one. Noteworthy, also, is the observation that the only nationalities which have any pupils represented in the lowest mental age-group, ten to eleven years, are the Italians, the Lithuanians, the Germans, and the Polish, in the descending order of seven, four, three and one, respectively.

In the mental age-group, 18-6 to 18-11, the Germans have three pupils, and the Polish, one pupil. This age-group is the highest for these two nationalities. The Italians have but one in the age-group, 18- to 18-5, which is their highest mental age-group. The Americans are lower than any of these, for the Table shows but one in the age-group, 17-6 to 17-11, which is their highest group. The mixed Americans, however, have one in the age-group, 14- to 14-5, which is their lowest, and one in the group, 20-6 to 20-11, which is their highest.

In the distribution of chronological ages as given in Table I, page eighteen, the middle fifty per cent was found, especially among the Lithuanians and the Polish, to be approximately from fourteen to fifteen years, with a few below the fourteen-year age level and a few above the fifteen-year age level. The Germans, the Italians, and the mixed Americans, however, had almost forty per cent in the age-

group, 14- to 14-5; while the mixed Americans had their remaining ten per cent in the age-group 13-5 to 14-. Now, the mental ages do not group themselves in this manner; instead, the middle fifty per cent is approximately the same for the Germans and for the Polish; that is, they range from 13-6 to 15-11; but the percentage varies. For thirty-one pupils, the Polish have their highest percentage, 15.5, in the age-group, 14- to 14-5; and for four pupils, a percentage of 2.0, in the age group, 15-6 to 15-11. The Germans have their highest percentage, 14.0, for twenty-eight pupils, in the age-group, 15- to 15-6; and 4.0, for eight pupils, in the age-group, 13-6 to 13-11.

A similarity is observed between the middle fifty per cent of the Lithuanians and that of the Italians, in as far as, the former extends from the age-group, 13- to 13-5, up to 15-6 to 15-11; and the middle fifty per cent of the latter reaches above to the age-group, 15- to 15-5; but it starts with the lower age-group, 12-6 to 12-11. This gives the Lithuanians, a cumulative frequency of ninety-nine, between the age-groups, 13-5 to 15-5; and the Italians, a cumulative frequency of ninety-eight, between these same age-groups. The highest percentage is attained by the Lithuanians, with seventeen per cent for thirty-four pupils, and the Italians, with fourteen per cent, per twenty-eight pupils, for both

nationalities have these percentages in the same age-group, 14- to 14-5. The lowest percentage for the former is 0.5, for one pupil in the age-group 15-6 to 15-11, in contrast to a percentage of 1.0, for two pupils of the latter, in age-group 12-6 to 12-11.

The middle fifty per cent of the Americans is found between the age-groups 13- to 13-5 and 14-6 to 14-11, with their highest percentage of twenty-one, for forty-two pupils, and the lowest percentage of eight, for sixteen pupils, in the age-group 13-6 to 13-11. This is exactly the same as the number and the percentage of the Polish, in the age-group 13-6 to 13-11.

Of these five nationalities discussed, the Germans have in the upper group of their middle fifty per cent, the highest percentage, 10.0, for twenty pupils, in the age-group 15-6 to 15-11. This percentage is five times that of the Polish, for the same mental age level.

The mixed Americans have their middle fifty per cent between the age-groups 16- to 16-5 and 17- to 17-5. No other nationality has reached the percentage, 23.5, for forty-seven pupils in the age-group 16- to 16-5, in its middle fifty per cent. The Polish group comes closest to it, with a percentage 10.5, for twenty-one pupils in this same age-

TABLE III

DISTRIBUTION OF MENTAL AGES OF 1200 SENIOR HIGH SCHOOL  
PUPILS OF VARIOUS NATIONALITIES AT THE TIME OF THEIR  
ENROLLMENT IN FRESHMAN YEAR

Mental Age	N A T I O N A L I T I E S					
	T R U E			B L O O D S		
Years- Mos.	Italian	Polish	German	Lithuanian	American	Mixed American
20-6						1
20-						1
19-6						1
19-				2		3
18-6		1	3	1		8
18-	1	2	2	4		20
17-6	2	1	9	4	1	9
17-	4	5	4	9	4	7)
						22)
16-6	9	11	17	4	4	31
16-	17	21	12	18	10	47)
		9)	3)	8)		9)
15-6	10	4)	20)	1)	11	25
15-	7)					
	18)	21	28	22	13	9
14-6	21	28	21	20	7)	6
					22	
14-	28	31	23	34	42	1
13-6	17	16	8)	11	16	
			5)	12)	20	
13-	14	26	12	15	3	
12-6	2)	6	14	11	16	
	10)					
12-	14	10	9	13	16	
11-6	11	4	5	1	9	
11-	8	3	2	6	6	
10-6	3	1	2	1		
10-	4		1	3		
Total	200	200	200	200	200	200



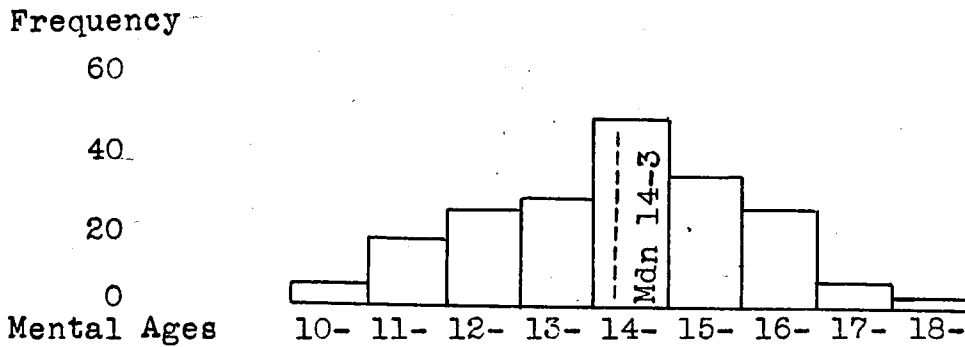


FIGURE 7  
ITALIANS

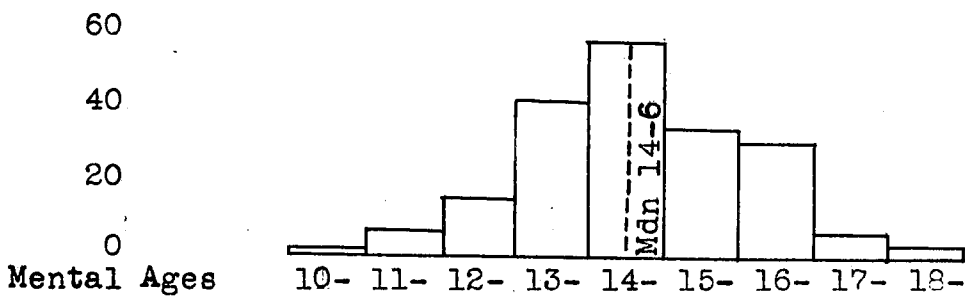


FIGURE 8  
POLISH

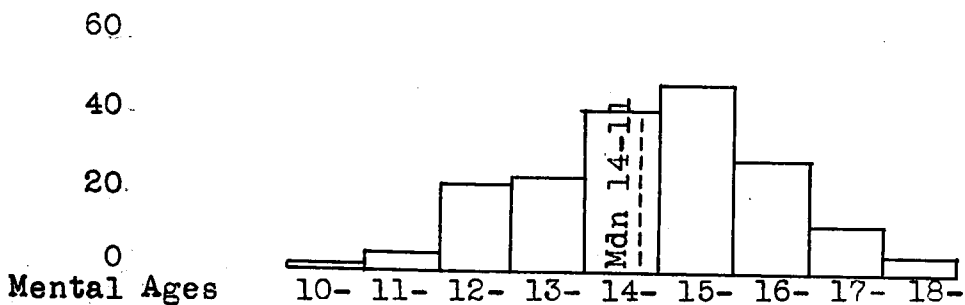


FIGURE 9  
GERMANS

DISTRIBUTION OF THE MENTAL AGES OF 200 EACH OF THE ABOVE NATIONALITIES

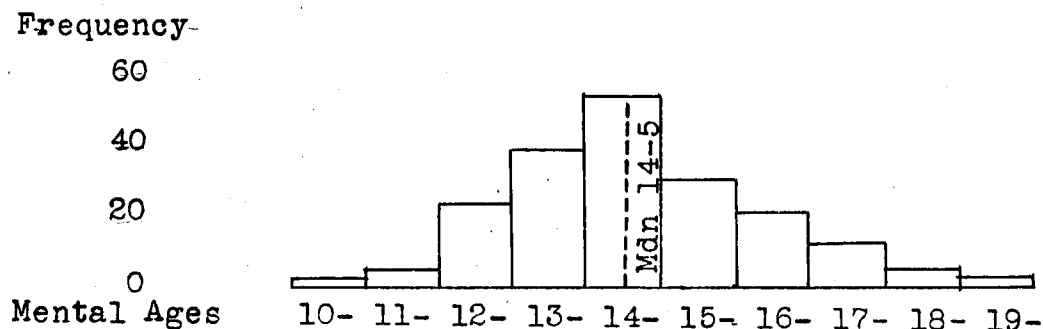


FIGURE 10  
LITHUANIANS

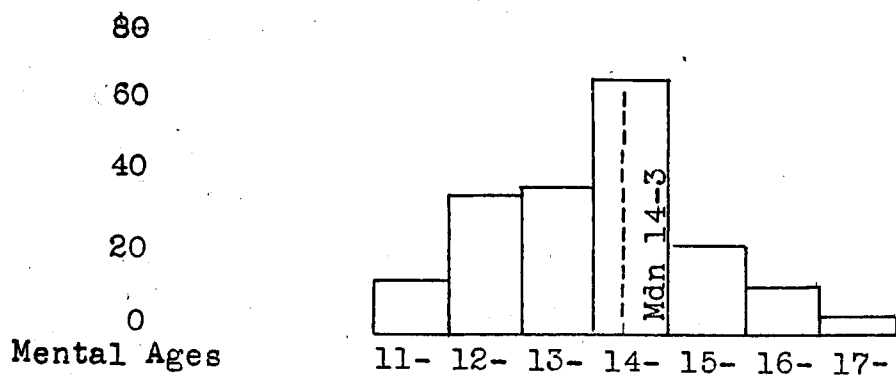


FIGURE 11  
AMERICANS

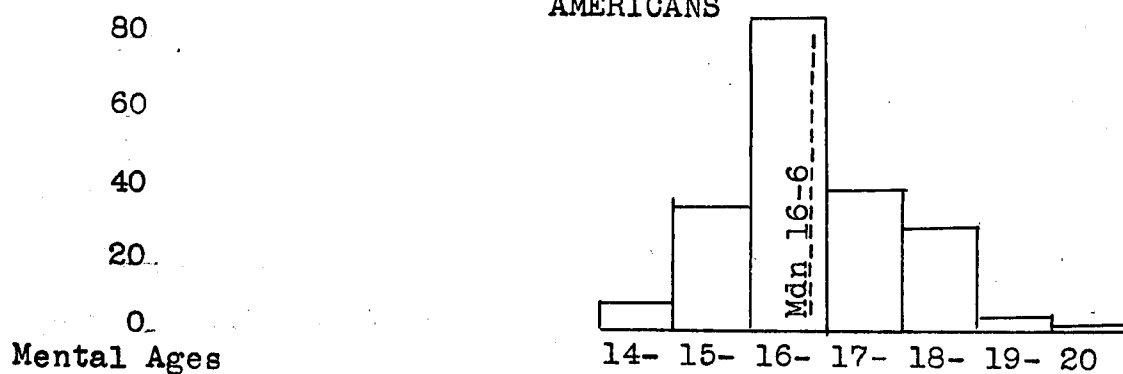


FIGURE 12  
MIXED AMERICANS

DISTRIBUTION OF THE MENTAL AGES OF 200 EACH OF THE ABOVE NATIONALITIES

group, but they are not in the middle fifty per cent of the Polish group. Among the mixed Americans, the highest percentage is in the first age group just mentioned, and the lowest percentage in this same middle fifty per cent is 11.0 for twenty-two pupils in the age-group 17- to 17-5. The range of the mixed Americans is between the age-groups 14- to 14-5 and 20-5 to 20-11.

#### MEASURES OF CENTRAL TENDENCY AND VARIABILITY

The mean (M), the median (Mdn), the quartile<sub>3</sub> (Q<sub>3</sub>), and the quartile<sub>1</sub> (Q<sub>1</sub>) were then computed and tabulated in Table V. The results of the computation indicate that the nationality with the highest mental age-group is the mixed American group. Then starting with the highest mental age in the upper quartile, or Q<sub>3</sub>, and proceeding in the descending order, the nationalities rank as follows: the mixed Americans, the Germans, the Polish, the Lithuanians, the Italians, and the Americans. A glance at quartile<sub>3</sub>, and quartile<sub>1</sub>, reveals at once, the position or location of the middle fifty per cent of each nationality. The mean varies but slightly from the median, and this variation, one to two months, is characteristic of all the nationalities, save that of the mixed Americans, where the variation is three months. The Q varies from 8.0, in the mixed American group, up to 14.5, in the Italian group and the Lithuanian group with the inter-



TABLE V

THE MEAN, THE MEDIAN, THE UPPER AND THE LOWER QUARTILE,  
ALSO THE QUARTILE DEVIATION AND STANDARD DEVIATION OF  
THE MENTAL AGES OF 1200 SENIOR HIGH SCHOOL PUPILS  
OF DIFFERENT NATIONALITIES

Measures	N A T I O N A L I T I E S					
	T R U E			B L O O D S		
	Italian	Polish	German	Lithu- anian	American	Mixed American
Quartile <sub>3</sub>	15-4	15-6	15-11	15-6	14-10	17-4
Median	14-3	14-6	14-11	14-5	14-2	16-6
Quartile <sub>1</sub>	12-11	13-6	13-8	13-3	13-	16-
Mean	14-2	14-7	14-10	14-4	14-	16-9
Q	14.5	12.5	13.5	14.5	11.0	8.0
SD	20.7	17.72	20.4	13.5	16.72	13.10

vening ones of 11.0, 12.5, and 13.5 for the American, the Polish, and the German groups. The mixed Americans prove to be a more homogeneous group. The SD is lowest, also, for the mixed Americans. This SD varies from 13.10, in the mixed American group, up to 21.24, in the Lithuanian group, with the Italian group and the German group being approximately the same, 20.7; and 20.4, and the American group and the Polish group being closely related, with 16.72, and 17.72. The SD is larger than the Q, and indicates about one-half the spread of the middle two-thirds of the cases.

#### PERCENTAGE OF MENTAL AGES

The percentage of the mental ages for each age-group of the six nationalities selected is shown on pages thirty-nine and forty. It is evident, that of all the nationalities represented, the mixed Americans have the largest percentage, 43.5, and this percentage is in the age-group sixteen to seventeen years. Moreover, the mixed Americans lead in all the groups above this one. The Germans have the highest percentage, 25.5, in the age-group fifteen to sixteen years; the Americans, 35.5, in the age-group fourteen to fifteen years; the Polish, 21.0, in the age-group thirteen to fourteen years; the Americans, 16.0, in the age-group twelve to thirteen years; the Italians lead in both of the lowest groups, eleven to twelve years, and ten to eleven years, with a per-

centage, 9.5, and 3.5, respectively. The mixed Americans lead in the two highest groups, nineteen to twenty years, and twenty to twenty-one years, and the Italians lead in the two lowest groups, but the percentage varies, 2.0 and 1.0, for the mixed American group. In the age-group fifteen to sixteen years, the percentage of Italians, of mixed Americans, and of Polish is approximately the same, as is also, that of the Lithuanians and of the Germans in the age-group seventeen to eighteen years, and eighteen to nineteen years.

No mixed Americans are found below the mental age level of fourteen years, while on the other hand, no other nationality but the mixed American group is found in the age-group twenty to twenty-one years. The Lithuanian group has 1.0 per cent in the age-group nineteen to twenty, and 2.5 in the age-group eighteen to nineteen, with a steady increase in the groups down to the thirteen to fourteen year group, where there is a decrease downward in each succeeding group to 2.0 per cent in the age-group ten to eleven years.

In Figures 14, 15, 16 and 13, pages thirty-nine and forty, in the age-group ten to eleven years, are the Polish, the Germans, the Lithuanians, and the Italians, with per cents 0.5, 1.5, 2.0, and 3.5, respectively. These same nationalities increase in percentage in the ascending groups, up to

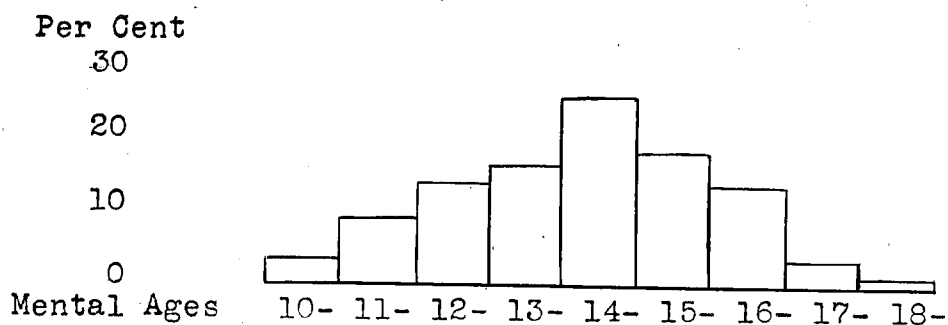


FIGURE 13  
ITALIANS

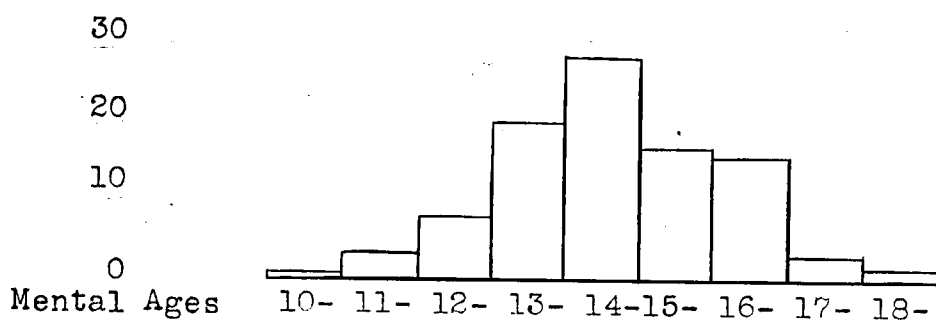


FIGURE 14  
POLISH

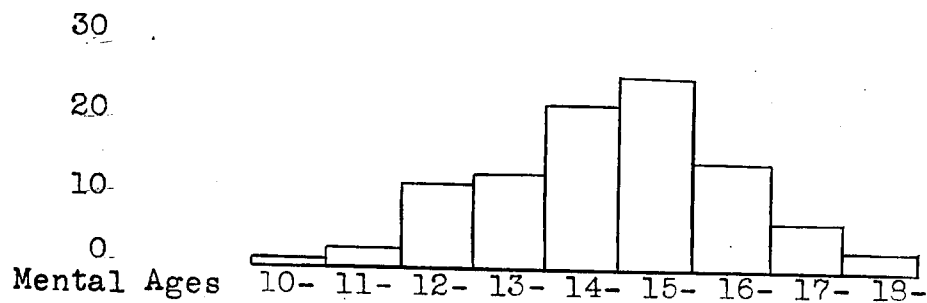


FIGURE 15  
GERMANS

DISTRIBUTION OF THE PER CENTS OF MENTAL AGES  
OF 200 EACH OF THE ABOVE NATIONALITIES

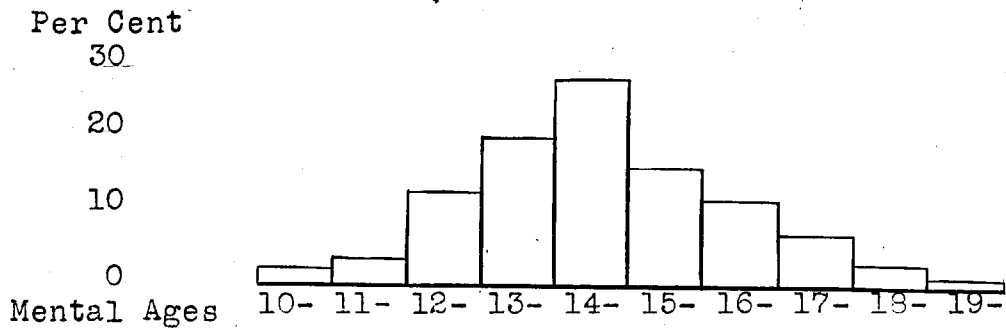


FIGURE 16  
LITHUANIANS

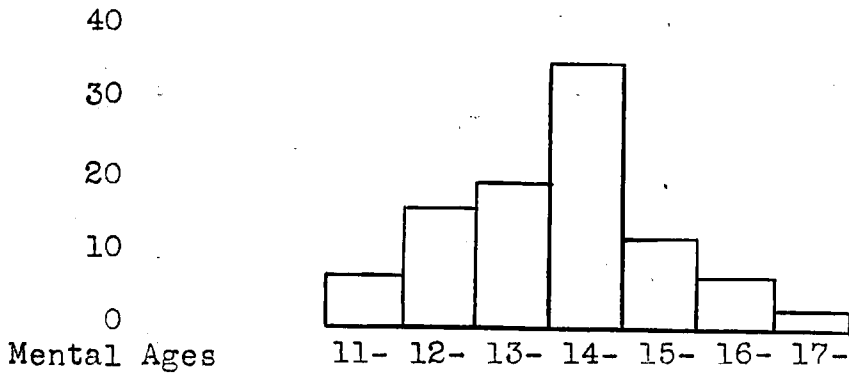


FIGURE 17  
AMERICANS

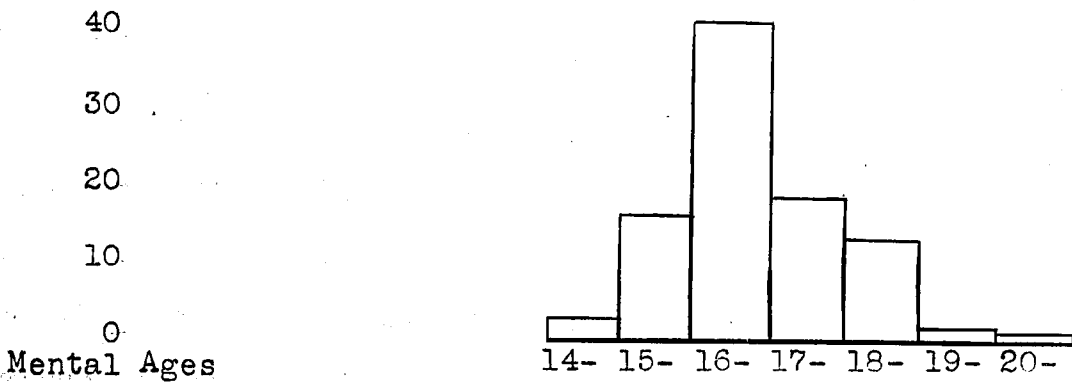


FIGURE 18  
MIXED AMERICANS

that of the fourteen- to fifteen-year group, and as the mentality of those within the group increases on and up to the age-group nineteen to twenty years, so do these same nationalities decrease in per cent until the age-group twenty to twenty-one is reached, and there, the one nationality found is the mixed American group, with 1.0 per cent.

The rank of each nationality according to its percentage in the lowest mental age-groups is indicated in Table VI. Combining the per cents of each nationality found below the fourteen-year age, mental level, the rank of each is as follows: The American group, with 46.0 per cent; the Italian group, with 41.5 per cent; the Lithuanian group, with 36.5 per cent; the Polish group, with 33.0 per cent, and the German group, with 28.5 per cent.

According to Table VI, the Polish group has the largest percentage, 21.0, in the age-group 13- to 13-11, but the smallest percentage, 0.5, in the lowest age-group, 10- to 10-11, and next to the lowest percentage, 3.5, in the age-group 11- to 11-11, for the German group has the lowest percentage, 3.0, in this last age-group. The Polish group has nearly three times as many, or 21.0 per cent, in the age-group, 13- to 13-11, as it has in the 12- to 12-11 age-group, or 8.0 per cent. Though it ranks first in the 13- to 13-11 age group, it is last in the 12- to 12-11 age-group. The

TABLE VI

THE RANK OF EACH NATIONALITY ACCORDING TO ITS PERCENT-  
AGE IN EACH OF THE FOUR LOWEST MENTAL AGE GROUPS

Rank	Age Group	Per Cent	Age Group	Per Cent	Age Group	Per Cent	Age Group	Per Cent
	13- 13-11		12- 12-11		11- 11-11		10- 10-11	
1	Polish	21.0	Ameri- cans	16.0	Ital- ians	9.5	Ital- ians	3.5
2	Ameri- cans	19.5	Ital- ians	13.0	Ameri- cans	7.5	Lithuan- ians	2.0
3	Lithu- anians	19.0	Lithu- anians	12.0	Lithu- anians	3.5	Germans	1.5
4	Ital- ians	15.5	Germans	11.5	Polish	3.5	Polish	0.5
5	Ger- mans	12.5	Polish	8.0	Ger- mans	3.0	-----	---

Italian group ranks first in both of the groups, 11- to 11-11 and 10- to 10-11, but it is second in the age-group 12- to 12-11, and fourth in the age-group 13- to 13-11. The Lithuanian group ranks third in all groups, but the last wherein it ranks second, with a percentage of 2.0. In the first age-group, 13- to 13-11, however, it has more than nine times that percentage. The American group ranks second in the age-groups, 13- to 13-11, and 11- to 11-11, but it is first in the age-group, 12- to 12-11, and the percentage is approximately the same for the age-groups 13- to 13-11, and 12- to 12-11 group. The American group is not represented in the lowest mental age-group, 10- to 10-11. The German group, as well as the Polish group, the Italian group, and the Lithuanian group is found in all four of the lowest mental age-groups, varying in percentage from 1.5, in the age-group 10- to 10-11, to twice that percentage in the age-group 11- to 12, and to almost four times this last percentage in the age-group 12- to 13-, with a slightly increasing percentage in the age-group 13- to 14. It is noteworthy that no mixed Americans are found below the mental age level of fourteen years, and only 3.5 per cent are in the mental age level group, fourteen to fifteen years.

Summary. The data resulting from the investigation and the computations show: first, that the mentality of the



mixed Americans, on entering high school, is of a higher level, and above the average in the majority of cases; secondly, that very few are found in the average age-group, 14- to 14-5; thirdly, that none are found below this age-group; fourthly, that the other nationalities, namely, the Americans, the Italians, the Lithuanians, the Polish, and the Germans are found below the mental age level of fourteen years, with per cents of 43.0, 41.5, 36.5, 33.5, and 29.0. In other words, these last five nationalities have approximately from thirty to forty per cent of their number below the fourteen year age level of mentality.

The medians are approximately equal, see Figures 7, 10, and 11, with the exception of those for the Polish, the Germans, and the mixed Americans, Figures 8, 9, and 12, where it varies slightly from 14-6 to 14-11 and 16-6. The Q, which indicates where fifty per cent of all cases will probably fall, varies in like proportion, see Table V, page thirty-six, with 8.0, for the mixed Americans, thus indicating a more homogeneous group. The Q is greatest for the Italians, 14.5, and for the Lithuanians and the Germans it is 13.5, with a variation of 1.0 less, for the Polish, and for the Americans it is 11.0. The SD, which indicates approximately where one-half the spread of the middle two-thirds of all the cases will probably fall, is greatest for the Italians, the Germans, and the Polish, as shown in Table V, page thirty-six.

The Americans and the Polish are approximately the same, whereas the mixed Americans group is the lowest, with a deviation 13.1.

DISTRIBUTION OF THE FOUR YEAR AVERAGES OF 1200 SENIOR  
HIGH SCHOOL PUPILS OF VARIOUS NATIONALITIES AND  
OF DIFFERENT LEVELS OF MENTAL ABILITY

After tabulating all the four-year averages of the various nationalities studied, it was found that they ranged from sixty-seven to ninety-six on the percentage scale.

The Lithuanians, alone, have one in the lowest group, sixty-seven to sixty-eight, while the Lithuanians, the Americans, and the Italians are represented in the next lowest group, sixty-nine to seventy, in the descending order of 3, 1, and 1. In the highest group, ninety-five to ninety-six, the mixed Americans lead with a frequency of five, followed by the Polish with two, and by the Americans with one.

The greatest frequency of any group is forty, which is found in both the mixed American group, and in the Italian group. For the latter the frequency is between seventy-nine and eighty; and for the former the frequency is between eighty-seven and eighty-eight. The Americans come next in frequency, with thirty-four each, in the seventy-seven to seventy-eight, and seventy-nine to eighty group. Both the

Germans and the Lithuanians have thirty-two each, but they are in different groups; the Germans are in the eighty-five to eighty-six group, and the Lithuanians are in the seventy-eight group.

The mean was then found for each nationality. Table VII shows that the mean for the Germans and for the Polish is approximately the same, falling as it does between the class average, eighty-three and eighty-five, while the mean of the Americans and the Italians falls between the class average eighty-one and eighty-three. The mean of the Lithuanians falls below in the class average, seventy-nine to eighty-one, while that of the mixed Americans exceeds all of these, falling in the class average group, eighty-seven to eighty-nine.

The medians, as shown in Table VII, vary from that of the lowest, 80.42, for the Lithuanian group, to the highest, 87.9, for the mixed American group. The German group and the Polish group are almost the same, as are also the Lithuanian and the American groups, but the Italian group is somewhat higher than the last two groups.

The Q is approximately the same for the mixed Americans and the Germans, and a little less for the Italians;

the Lithuanians and the Americans are very close; whereas, the Polish show the greatest quartile deviation.

Since there are no two nationalities ranking the same, the middle fifty per cent of the distribution of the class average for four years is decidedly different from that of the distribution of the chronological ages, or of the mental ages. The two groups that come the closest are the American group and the Italian group, who have at the top of the middle fifty per cent, the class average, eighty-five to eighty-seven, while at the bottom of the same middle fifty per cent, both are in the class average, group seventy-nine to eighty-one. The Italian group, however, has the larger number in each of the average groups in the middle fifty per cent, with the exception of the bottom group, seventy-nine to eighty-one, in which the American group is almost twice that of the Italian group. The Lithuanian group ranks lowest, for it has the greatest number, twenty-eight, in the class average group, seventy-seven to seventy-nine. The other extremity of their middle fifty per cent takes them up into the class average group, eighty-three to eighty-five. The Polish group and the German group, like the American group and the Italian group have some pupils represented at the lower end of their middle fifty per cent in the class average group, seventy-nine to eighty-one, but in the ratio

TABLE VII

DISTRIBUTION OF THE AVERAGES FOR FOUR YEARS FOR 1200 SENIOR HIGH SCHOOL PUPILS OF DIFFERENT NATIONALITIES

Averages	N A T I O N A L I T I E S					
	T R U E		B L O O D S			
	Italian	Polish	German	Lithu- anian	American	Mixed American
95-96		2			1	5
93-94	3	4	5	2	2	19
91-92	7	18	9	4	9	<u>26)</u> 9
89-90	10	<u>26)</u> 5)	16	11	13	19
87-88	<u>30</u>	18	<u>20)</u> 11)	12	12	40
85-86	21	17	32	19	<u>13)</u> 13)	24
83-84	27	27	18	<u>2)</u> 23)	17	<u>8)</u> 12)
81-82	33	18	31	18	22	12
79-80	<u>19)</u> 21	<u>15)</u> 8)	<u>8)</u> 22)	31	<u>34</u>	12
77-78	19	22	24	<u>28)</u> 4)	14) 20)	12
75-76	5	13	8	28	17	2
73-74	3	3	3	7	10	
71-72	1	4	1	7	2	
69-70	1			3	1	
67-68				1		
$Q_3$	87.00	89.32	87.71	84.84	86.00	91.51
Mdn	82.88	84.26	84.22	80.42	81.18	87.90
$Q_1$	80.05	79.69	80.33	77.25	78.18	84.20
M	83.36	84.29	84.03	81.08	82.12	88.54
Q	3.48	4.82	3.70	3.90	3.91	3.65
SD	4.48	5.57	4.78	5.23	5.20	4.84

of two to one, with the Polish having fifteen, and the Germans, eight. At the top of their same middle fifty per cent, there is a very decided change, for the German group has eleven in the class average group, eighty-seven to eighty-nine, and the Polish have eighteen in this group, though they top it off with five in the class average group, eighty-nine to ninety-one. The highest middle fifty per cent is that of the mixed Americans, whose range is from eighty-three to eighty-five, with eight at the lower extremity to that of ninety-one to ninety-three, with nine.

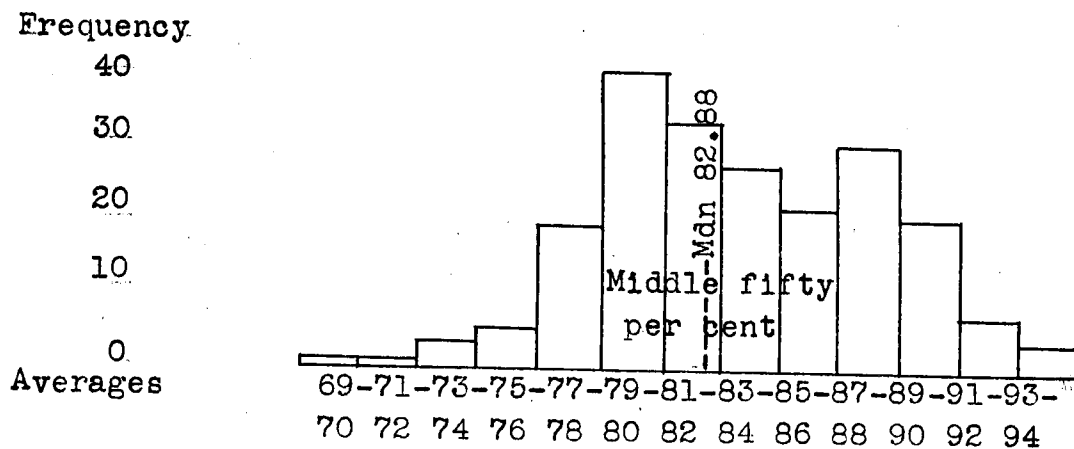


FIGURE 19  
ITALIANS

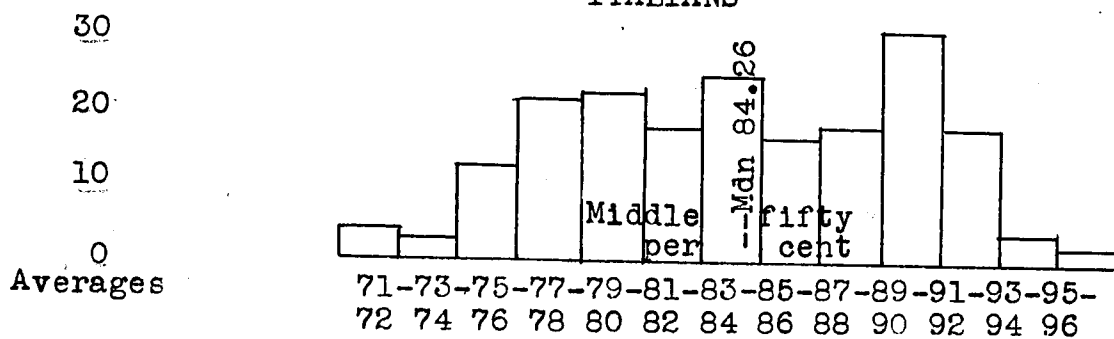


FIGURE 20  
POLISH

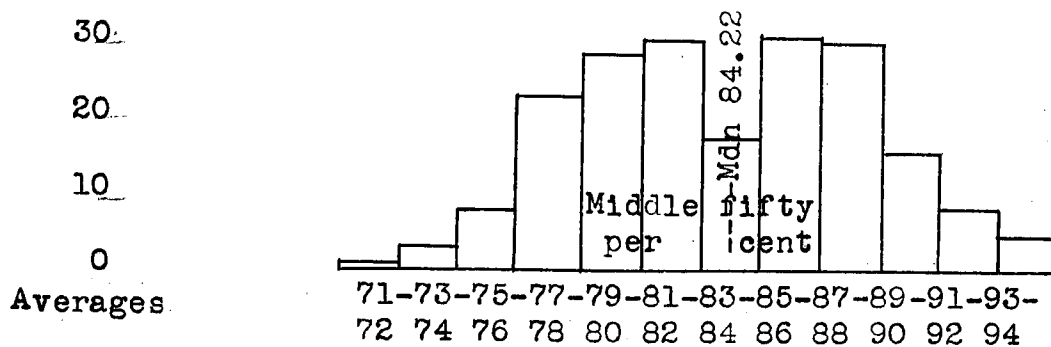


FIGURE 21  
GERMANS

DISTRIBUTION OF THE AVERAGES FOR FOUR YEARS FOR 200 EACH  
OF THE ABOVE NATIONALITIES

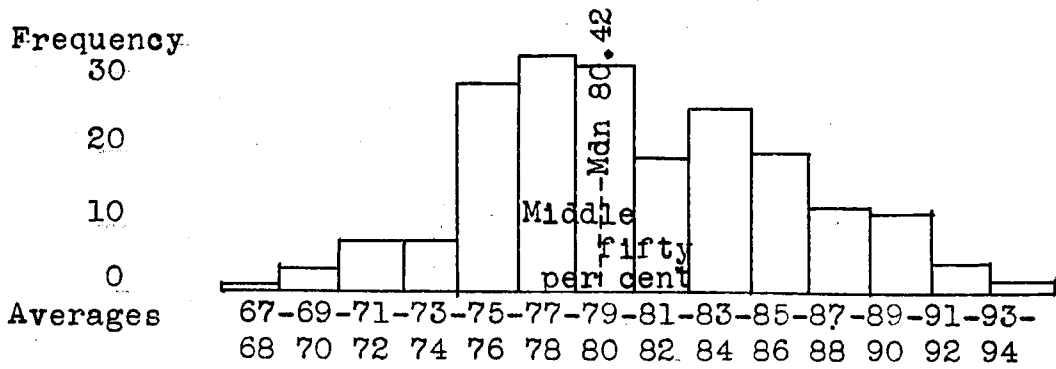


FIGURE 22  
LITHUANIANS

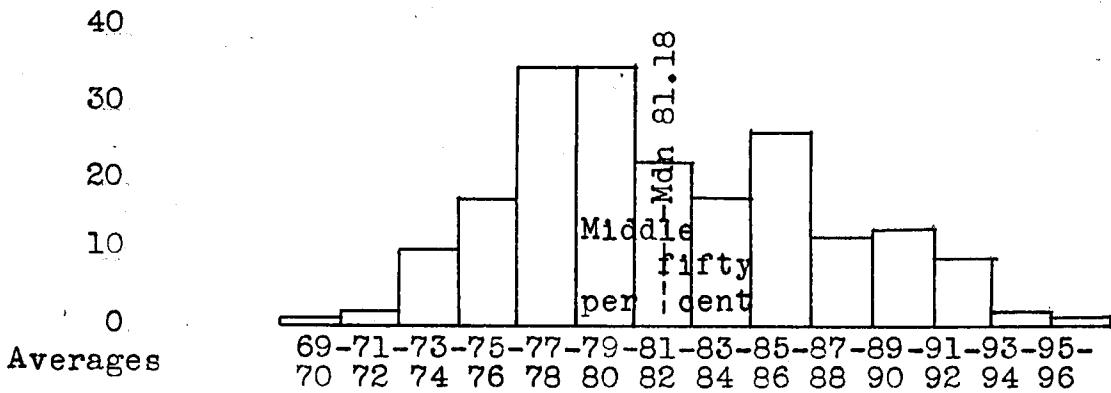


FIGURE 23  
AMERICANS

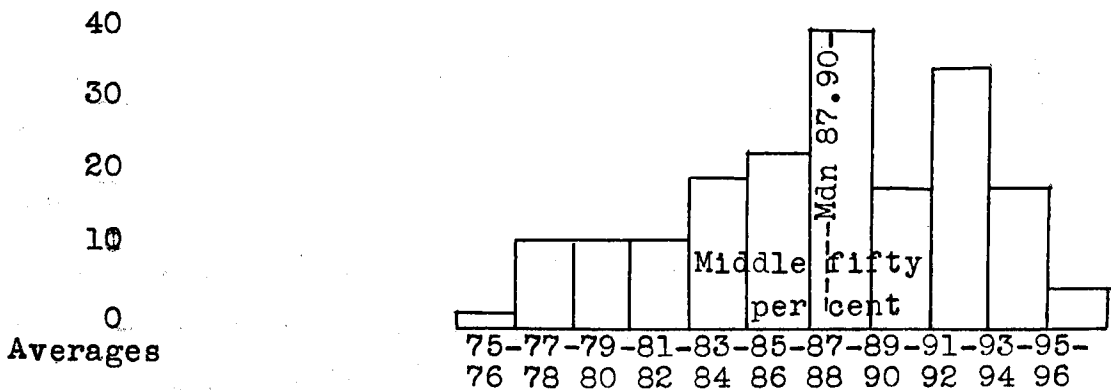


FIGURE 24  
MIXED AMERICANS

DISTRIBUTION OF THE AVERAGES FOR FOUR YEARS FOR 200 EACH OF THE ABOVE NATIONALITIES



## CHAPTER IV

DISTRIBUTION OF THE INTELLIGENCE QUOTIENTS OF 1200  
SENIOR HIGH SCHOOL PUPILS OF DIFFERENT NATIONALITIES

Chapter IV reveals the distribution of the intelligence quotients of the twelve hundred senior high school pupils of different nationalities, as mentioned in the preceding chapter, together with the percentage of these same intelligence quotients. It also pertains to the number and the percentage of grade marks in their relation to the theoretical school standard of marking.

## PURPOSE OF THE STUDY

Purpose. The objective of the study was to determine: (1) the mean of the intelligence quotients of each of the six groups of two hundred senior high school pupils of the nationalities indicated in the foregoing chapters; (2) to find the relation between the mental ability of the pupils of these different nationalities and their average achievement; (3) and to compare their marks of the senior year with the marks of the theoretical school standard.

## PROCEDURE

Method used. The intelligence quotients of the twelve hundred senior high school pupils of the various nationalities, as mentioned in the preceding chapter, were tabulated, beginning with those having an intelligence quotient of sixty-five, and continuing up to 149, with a step interval of five.

Table VIII shows the comparison of the intelligence quotients of the six nationalities studied, together with the percentage for each step interval, of each nationality. The following classification was used:

Above 140-----	"Near" genius or genius
120-140-----	Very superior intelligence
110-120-----	Superior intelligence
90-110-----	Normal or average
80- 90-----	Dullness (automatic response)
70- 80-----	Borderline deficiency
Below 70-----	Definite feeble-mindedness
50- 70-----	Morons (age seven to eleven)

Median. The Polish group and the Italian group have approximately the same median as well as the lowest median, 90.65, and 90.67. The American group ranks second, with a median, 98.83, while the Lithuanian group and the German group, ranking third and fourth, with medians, 101.57, and 104.66, respectively, and the mixed American group, highest of all, with a median, 118.64. The mean of each nationality varies little, only decimally, from its respective median.

The middle fifty per cent. The middle fifty per cent is lowest for the Italian group. Its lowest range has ten, with a percentage of 5.0, in the intelligence group eighty to eighty-four; its highest range has eleven pupils, with a percentage, 5.5, in the intelligence group, ninety-five to ninety-nine. The largest number, forty-five, with a percentage of 22.5, is found in the intelligence group, ninety to ninety-four.

There is a similarity between the Italian group and the Polish group, for both have their lowest range in the intelligence group, eighty to eighty-four. However, the Italian group has ten; whereas, the Polish group has one. In the upper extremity of the middle fifty per cent, the Polish have twenty-three, or a little more than twice the number of the Italians, for this same group, ninety-five to ninety nine. The greatest number, forty-five, is found in the eighty-five to eighty-nine group for the Polish; whereas, the same number, forty-five, for the Italian group is in the ninety to ninety-four group. The lowest intelligence group for the Polish is 115-119, with four; whereas, that of the Italian group is 110-114, with three pupils.

The Lithuanian group has for its middle fifty per cent, the intelligence group, ninety to ninety-four, with eleven at the lowest extremity, and the group 105 to 109, with twenty-six at the upper extremity. The greatest number for any intelligence group of the Lithuanians is thirty-five pupils, in the group, one hundred to 104.

The American group has its middle fifty per cent in only three intelligence groups: ninety to ninety-four; ninety-five to ninety-nine; and one hundred to 104. The lowest group of this same middle fifty per cent has fourteen, and the highest group, almost three times that number; whereas, the middle group, with intelligence ninety-five to ninety-nine, has forty-seven pupils, the largest number in any of the American intelligence groups. The range for the American group is from three, in the intelligence group seventy-five to seventy-nine, up to ten, in the intelligence group, 115-119. The German group starts with two, in the seventy to seventy-four intelligence group, and extends up to eight, in the 120-124, intelligence group. The Lithuanian group, however, starts with one, in the lowest intelligence group, sixty-five to sixty-nine, and extends to one, in the 140-144 group.

Of the five nationalities discussed, the German group, starting with nine, in its middle fifty per cent, has the

highest range from that of the intelligence group, ninety-five to ninety-nine, and with this same number, nine, the range extends up to the intelligence group, one hundred ten to 114. The greatest number that the Germans have in any one group is forty-four in the 100-104 group; this is nine more than the Lithuanians have for this same intelligence group.

The mixed Americans, however, start with three, in the group 100-104, and extend to one in the group, 145-159, with the greatest number, fifty-five, for any one group, in that of 115-119. The mixed Americans and the Lithuanians are the only ones who have some beyond the intelligence group, 120-124. The Lithuanians and the Italians are the only ones who are found in the lowest intelligence group, sixty-five to sixty-nine, and the mixed American group is the only group that starts with intelligence of 100-104.

Since the normal intelligence is between ninety and one hundred ten, the investigation indicates that the mixed Americans have none below ninety; whereas, the True Blood Americans have 12.5 per cent; the German group, 7.5 per cent; the Italian group, 47.0 per cent; and the Polish group, 48.0 per cent. The Polish group and the Italian group have the largest percentage of those below the normal intelligence;

therefore, one may infer that there are still many pupils in high school with low intelligence quotients.

Terman<sup>16</sup> states that the middle fifty per cent falls approximately between ninety-three and 108, but for the Italian group, this middle fifty per cent is found between seventy-nine and eighty-nine, and that the average intelligence for those of the Polish group is about eighty-five.

In this study, the Lithuanian group is the only one that is found in the position Terman specifies; all the other groups are either a little above it or a little below it, with the exception of the American group, which comes very close to it, stopping at the intelligence quotient 105. The average intelligence quotient of the Polish group studied is about ninety, which would make this group a little more cosmopolitan. The middle fifty per cent of the Italian group starts at about the same range that Terman states, but extends a little higher, which would lead one to infer that this Italian group is a little better than the average group of Italians, since its intelligence quotient for the upper extremity of its middle fifty per cent is ninety-nine, instead of eighty-nine.

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<sup>16</sup>Terman, op. cit., p. 5.

TABLE VIII

DISTRIBUTION OF THE INTELLIGENCE QUOTIENTS OF 1200 SENIOR HIGH SCHOOL PUPILS OF DIFFERENT NATIONALITIES AND THE PERCENTAGE FOR EACH GROUP

Intel- ligence Quo- tients	N A T I O N A L I T I E S											
	T R U E						B L O O D S					
	Italians		Polish		Germans		Lithuani- ans		Ameri- cans		Mixed Americans	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
145-149											1	0.5
140-144							1	0.5			1	0.5
135-139							3	1.5			5	2.5
130-134							5	2.5			8	4.0
125-129							3	1.5			22	11.0
120-124					8	4.0	8	4.0			13	6.5
											35	17.5
115-119			4	2.0	25	12.5	8	4.0	10	5.0	55	27.5
					17	8.5						
110-114	3	1.5	10	5.0	9	4.5	14	7.0	10	5.0	10	5.0
							8	4.0			34	17.0
105-109	4	2.0	16	8.0	38	19.0	26	13.0	27	13.5	13	6.5
									3	1.5		
100-104	24	12.0	20	10.0	44	22.0	35	17.5	39	19.5	3	1.5
	19	9.5										
95- 99	11	5.5	23	11.5	9	4.5	28	14.0	47	23.5		
					13	6.5			14	7.0		
90- 94	45	22.5	31	15.5	22	11.0	11	5.5	25	12.5		
							17	8.5				
85- 89	34	17.0	45	22.5	8	4.0	19	9.5	16	8.0		
			1	0.5								
80- 84	10	5.0	29	14.5	4	2.0	8	4.0	6	3.0		
	20	10.0										
75- 79	18	9.0	16	8.0	1	0.5	2	1.0	3	1.5		
70- 74	9	4.5	5	2.5	2	1.0	3	1.5				
65- 69	3	1.5					1	0.5				
Q <sub>3</sub>	96.83		100.0		111.73		108.82		104.64		123.65	
Mdn	90.67		90.65		104.66		101.57		98.83		118.64	
Q <sub>1</sub>	83.33		84.83		97.95		93.04		93.20		113.86	
M	89.63		92.45		104.35		102.10		99.13		119.20	
Q	6.75		7.58		6.89		6.57		5.72		8.40	
SD	9.30		11.02		10.09		13.23		8.50		7.30	

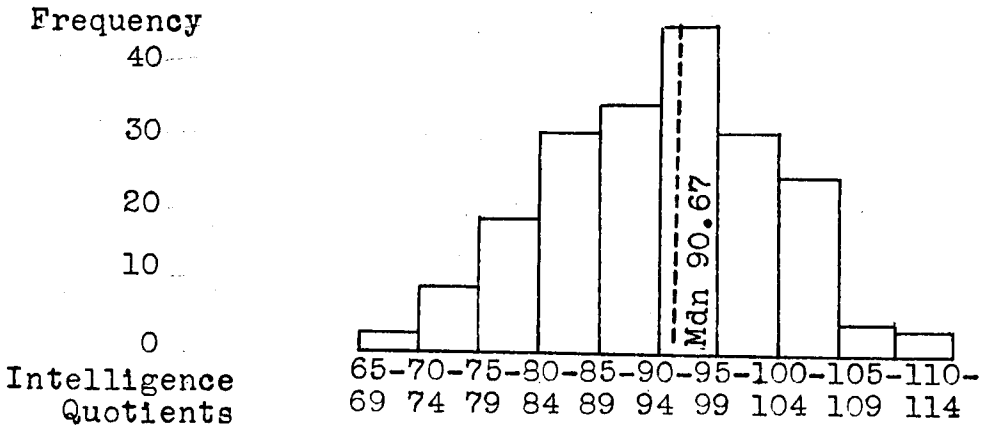


FIGURE 25  
ITALIANS

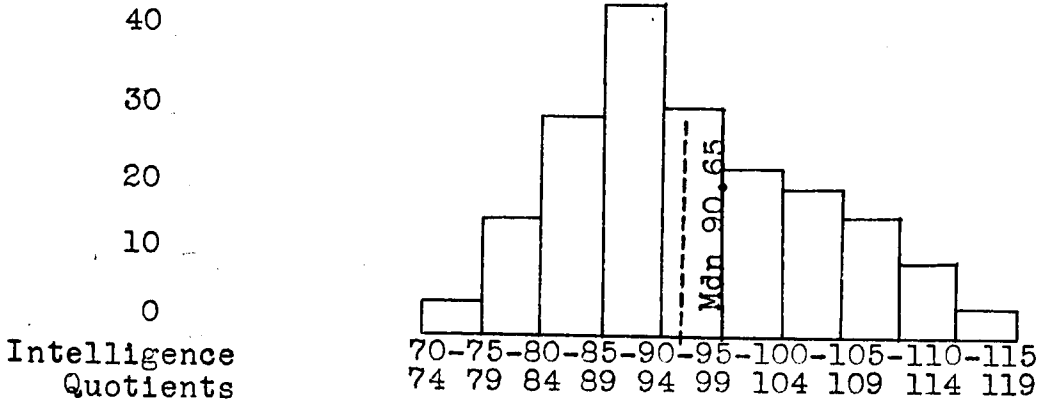


FIGURE 26  
POLISH

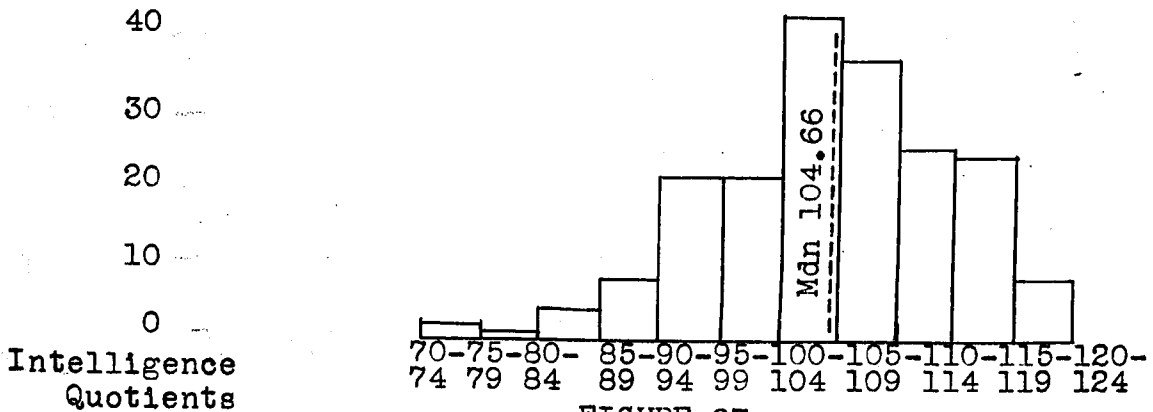


FIGURE 27  
GERMANS

DISTRIBUTION OF THE INTELLIGENCE QUOTIENTS OF 200 OF EACH OF THE ABOVE NATIONALITIES



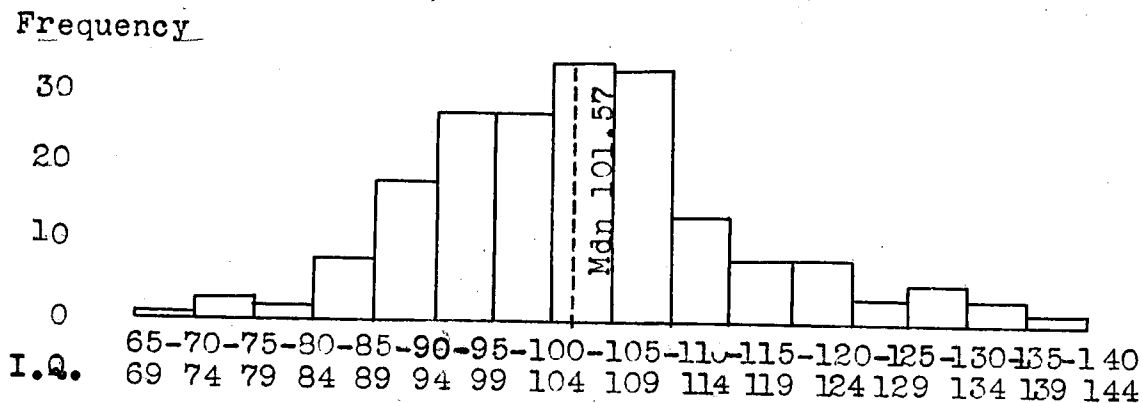


FIGURE 28  
LITHUANIANS

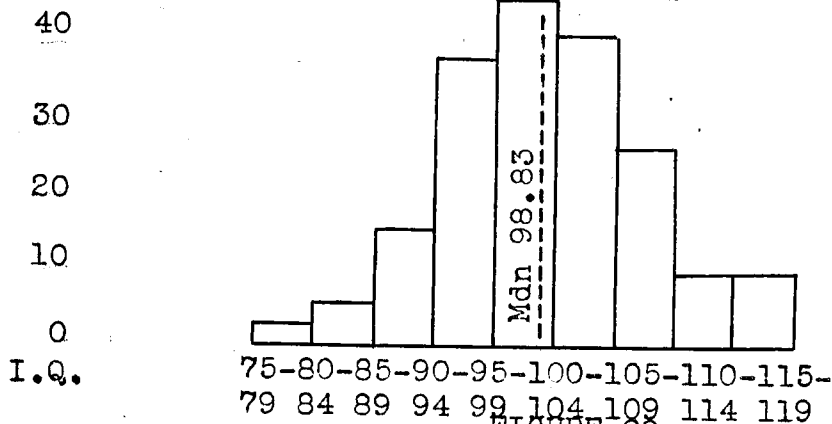


FIGURE 29  
AMERICANS

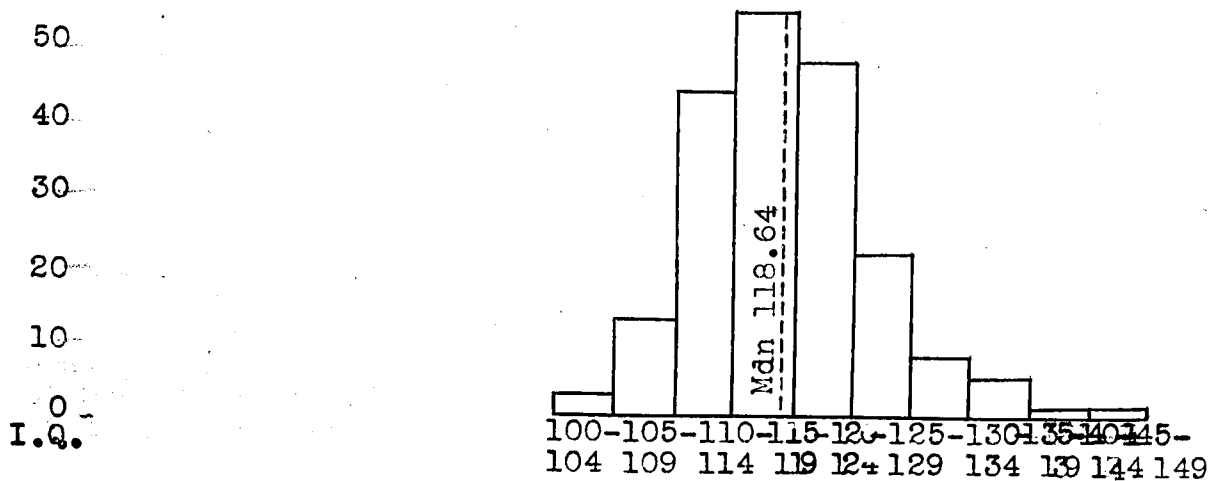


FIGURE 30  
MIXED AMERICANS

DISTRIBUTION OF THE INTELLIGENCE QUOTIENTS OF 200 OF EACH  
OF THE ABOVE NATIONALITIES

The average median of all the nationalities is 100.84 which is a little less than two points below 102.0, the average median determined by Kefauver, Noll, and Drake<sup>17</sup>, for all types of schools, except trade schools. Freeman<sup>18</sup> says:

It has been shown by the study of American children of foreign-born parents, that those with highest intelligence quotients are the English, the Scotch, and the Jewish; those about average are the Scandinavians, and Germans and Bohemians; those below are the Italians and the Polish.

He further adds that these findings may be due to the fact that the pupils come from non-English speaking homes. The German group in this study is a little better than average, since its middle fifty per cent extends from ninety-five to 115 in intelligence.

#### MEASURES OF VARIABILITY

Quartile Deviation. The Q is approximately the same for the German group, the Italian group, and the Lithuanian group. The American group has the lowest Q; the mixed Ameri-

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<sup>17</sup>Grayson N. Kefauver, Victor H. Noll, and C. Elwood Drake, "The Secondary School Population," National Survey of Secondary Education Monograph No. 4. United States Office of Education, Bulletin No. 17, 1932, p. 21.

<sup>18</sup>Freeman, op. cit. p. 4.

can group, the highest; and the Polish group about one less than the mixed American group, or 7.58. This would lead us to deduce that the American group is more homogenous than any of the other groups.

Standard Deviation. The SD is highest for the Lithuanian group, and lowest for the mixed American group. For the American group and the Italian group, the SD is approximately the same; the Polish group is second highest, with 11.02, and it is followed by the German group, with 10.09.

In the groups studied, there is forty-eight per cent of Polish; forty-six per cent of Italians; sixteen and a-half per cent of Lithuanians; twelve and a-half per cent of Americans, and seven and a-half per cent of Germans, below normal intelligence. This makes approximately twenty-three per cent of the entire group of twelve hundred seniors below the normal intelligence, which leads to the inference that the increase in enrollment in high schools includes many of below-average intellectual ability; thus, the mean mental and mean chronological ages of those entering high school is not only lowered, but the percentage of those graduated, who are below normal intelligence, is increased.

## ACHIEVEMENT AND MENTAL ABILITY

Procedure. The two hundred intelligence quotients of each of the different nationalities selected were tabulated in the following manner: the intelligence quotients were placed in four vertical divisions, ranging from the lowest to the highest in quarters from one to four, and on a horizontal plane were placed the grades, A, B, C, D, and E. The A grade represented an achievement in class work between ninety-three and one hundred; the B grade, between eighty-five and ninety-two; the C grade, between seventy-eight and eighty-four; the D grade, between seventy and seventy-seven, and the E grade, failure, or below seventy per cent.

Taking the mixed Americans, for an example, (see Table IX, page 73) for the first quarter, the intelligence quotient is 113.86; for the median, the intelligence quotient is 118.64; for the third quarter, the intelligence quotient is 123.65; while for the fourth quarter, the intelligence quotient is anything above 123.65. Therefore, all intelligence quotients up to 113.86 were placed in the lowest quarter or fourth; all intelligence quotients between 113.86 and 118.64 were placed in the second quarter; all intelligence quotients between 118.64 and 123.65 were placed in the third quarter; while all intelligence quo-

tients from 123.65 and up were placed in the highest or fourth quarter. If the grade was ninety-two and the intelligence quotient 119, then in the horizontal column marked B, one was tabulated in the section opposite the third quarter. After all the marks were tabulated, the per cent for the numbers in each quarter and grade was found, and also, the sum totals for the numbers for each grade. The sum total of the grades varies from that of 1,786 for the Italians, up to 2,483 for the True Blood Americans. This is due to the courses pursued and the number of subjects taken.

Results. This study shows that of A grades, the Germans have the lowest number and the lowest percentage, namely, 113, and 5.94; while the mixed Americans have the highest both in numbers and percentage, having 410 and 20.24. The others range from 135 Italians to 275 Polish, with 156 Lithuanians and 165 True Blood Americans. The percentages for the last four groups named were 7.5, 13.6, 7.19 and 6.65, (see Table IX, page 73.)

Of the B grades, the Italians have the lowest number but not the lowest per cent, having 607 with a percentage of 34.00, while the Lithuanians have 609, with a percentage of 28.1, due to the difference in the sum total of all

marks for the four years, as the Italians have 1,786 and the Lithuanians have 2,168. The True Blood Americans have 723 but a percentage of 29.11, while the Polish have 655 with a percentage of 32.6; however, this was due to the variance in the sum totals of each, for the former has 2,483 marks, while the latter has but 2,168 marks. The Germans have 739 marks out of a possible 1,903, and a percentage of 38.83, while the mixed Americans have 942 B grades out of a possible 2,026 with a percentage of 46.5.

Of the C grades, the mixed Americans have 473 out of a possible 2,026, with a percentage of 23.2. The Polish have 540, but their percentage is the lowest of all for the C grades, namely, 26.8. The Italians are next with 597, but with a percentage of 33.4, which is higher than that of the Lithuanians, theirs being 31.3, although the number of Lithuanians is 680. The Germans are fourth in number having 655, but their percentage is 34.4, while the True Blood Americans have the largest number, 858, with a percentage of 34.6. The latter, however, has the largest sum total of marks for the four years, namely, 2,483; the Lithuanians, 2,168; the Polish 2,010; and the Italians, 1,786.

Of the D grades, the mixed Americans have the lowest number as well as the lowest percentage, the former being

two hundred, and the latter, 9.9. The Germans have 386, with a percentage of 20.3; the Italians, 403, with a percentage of 22.6; the Polish, 492, with a percentage of 24.5; the True Blood Americans, 736, the largest number of all, with a percentage of 29.7; the Lithuanians, 691, and a percentage of 31.9, the highest of all in the D grade, but next to the largest in number.

The scarcity of E grades or Failures was very marked. The Italians had forty-four, and glancing at their I. Q. in the various quarters you would expect to find more, as they range from average down to definite feeble-mindedness. The reason, however, is this: a number had failed in Latin and algebra, or Latin and geometry the first semester, so instead of having these pupils continue with academic subjects, they were transferred to classes in printing, shop work, manual training, designing, clerking, filing, business training, salesmanship, dramatic art, house management or typing, which seemed to be more in keeping with their mentality.

The mixed Americans had but one failure and that one was in the lowest quarter although the intelligence quotient of this individual was close to 113, which shows that this pupil did not work up to capacity, for the pupil was above average mentality. The true blood Americans also had but one, and that one, like the mixed American, was in

the first quarter, but the intelligence quotient in this case was below ninety-three, although of average intelligence. The Germans had ten: four in the first quarter, five in the second quarter; and one in the third quarter, although the intelligence quotients in the above order were ninety-six, 103, and 110, all of which were in the normal or average group, and perhaps with a little effort, if they had applied themselves, these pupils might have made the grade.

The Lithuanians had thirty-two failures: eighteen in the lowest quarter; seven in the second quarter; four in the third quarter; and three in the highest or fourth quarter with intelligence quotients in the above order from sixty-five to ninety-three; from ninety-three to 101; from 101 to 108 and above 108. The failures in the lowest quarter could be accounted for, because of the groups of mentality found therein, namely: morons, definite feeble-mindedness, borderline deficiency, dullness or automatic response. It seems possible that if other subjects had been offered to them, as to the Italians, there would not have been as many failures in the average mentality group or those in the second, the third, and the fourth quarter. The subjects in which the Lithuanians had their greatest failures were in United States History, with twelve; Ancient History, four; English and geometry, three each, with the remainder in algebra, French,



Latin, Modern History, chemistry, shorthand, typing and book-keeping.

The Polish, however, had the largest number of failures, namely, forty-eight, with two in the lowest quarter, four in the second quarter, thirty-two in the third quarter, and ten in the fourth quarter. The large number of failures may be due to any one or more than one of the following reasons: that Polish was spoken in the homes; that nearly all these pupils took four years of Polish in high school; that the teachers were very close markers; or that their intelligence quotients ranged from seventy to a little more than 110 which would include the morons, definite feeble-minded, borderline deficiency, and those of the automatic response or dullness group. The Polish group had their majority of failures in civics, geometry, physics, Modern History, and chemistry; and the remainder of failures occurred in advanced algebra, sociology and economics.

All nationalities had their greatest number of A grades in the fourth quarter, ranging from fifty-one Germans to 212 Polish, with the exception of the true blood Americans and of the mixed Americans. The true blood Americans had seventy in the third quarter and the mixed Americans had 129 in the same quarter, while the former had sixty-six in the

fourth quarter and the latter, 119 in the fourth quarter. The Polish had the largest number of A grades for the fourth quarter; namely, 212, and since their intelligence quotients show that the majority of these pupils are in the average or normal group, they either applied themselves very studiously to their work or else these teachers were very lenient in marking as some others must have been close markers, for the Polish group had almost as many failures, thirty-two, in the second quarter as they had A grades, forty-eight, and these failures were also pupils of average intelligence.

As one would naturally expect, the smaller number of A grades was found in the lowest quarter, ranging from one in the Italian group to seventy-four in the mixed American group. The mixed Americans had as many A grades in the lowest quarter as the Lithuanians had in the fourth or highest quarter, namely, seventy-four. The Italians had approximately the same number in the fourth quarter as the mixed Americans had in the lowest quarter, see Table VII, page 48, the main difference being that the intelligence quotients of the Italian group for this quartile was ninety-six or a little above it, while that of the mixed American group was 123 or above. The reason for the Italian group having so many A grades when their intelligence quotients range from the majority average down to moron is no doubt the same that has

been given for their few failures, as has already been mentioned on page 66, and this would also apply to the few A grades found in the first, second and third quarters. The Germans had approximately the same number for the second quarter as for the third quarter, namely, twenty-seven and twenty-eight.

The A grades of mixed Americans in the lowest quarter were greater than the A grades of the true blood Americans in the highest quarter, although the intelligence quotients were about the same, while the number of A grades for the Lithuanians in this same quarter was exactly the same as those of the mixed Americans in their lowest quarter, where the intelligence quotients were the same, see Table IX, page 73.

Of all the grades, the Italians hold the last or sixth place for B grades, the fifth place for A grades, the fourth, for C grades, the third, for D grades and second, for failures. The Polish have first place for the largest number of failures, but for the other grades they are second for the large number of A grades, third, for the D grades, fourth for the B grades, and fifth for the C grades. The Germans are sixth or hold the lowest place for the smallest number of A grades, second highest for B grades, third, for C grades and also for failures, and fifth, for the number of D grades. The Lithuanians

are second for the number of C and D grades, and third for failures; moreover they are fourth for the number of A grades, and fifth, for the number of B grades. The true blood Americans were third for the number of A and B grades; although their number of B grades were more than four times the number of A grades, see Table IX, page 73, and first with the largest number of both C and D grades, with fourth place for failures, having only one. The mixed Americans were first, having the largest numbers for both A and B grades, but the smallest numbers for both C and D grades; although the D grade group was a little less than half that of the number in the C grade, and like the true blood Americans, they had but one failure.

Relationship between intelligence and achievement. It is evident from Table IX, page 73, that there is a very definite relationship between the intelligence quotient of individuals and their achievement. The fourth quarter for each nationality shows the greatest percentage of A and B grades. The percentage for A grades is as follows: mixed Americans, 36.2; Polish, 20.5; Lithuanians, 14.3; true blood Americans, 10.9; Italians, 10.8; and Germans, 10.4. For the B grades, the percentages are : in the fourth quarter, Germans, 55.7; mixed Americans, 48.3; true blood Americans, 45.1; Italians, 40.3; Polish, 39.3 and Lithuanians, 36.4.

Of all the marks given during the four years of high school to these 1200 seniors, approximately ten per cent of a total of 12,332 were A grades; thirty-five per cent, B grades; thirty-one per cent, C grades; twenty-three per cent, D grades and about one per cent of failures.

The mixed Americans seem to be the best both for intelligence and achievement, as they lead in both the number and per cent of A and B grades and have the lowest number and percentage of both C and D grades, with only one failure and that is in the lowest quarter.

The Germans have the smallest number of A grades, as well as the lowest percentage, while the Polish have the largest number of failures and the highest percentage of same. The Polish group has also the smallest number of B grades for the first quarter; but for all the quarters, the Lithuanians have the lowest percentage, namely, 28.1.

The true blood Americans have the greatest number, as well as percentage, for the C grades, but while they have the greatest number for D grades, the highest percentage is that of the Lithuanians, 31.9.

TABLE IX

RELATIONSHIP BETWEEN MENTAL ABILITY AND AVERAGE ACHIEVEMENT MARKS FOR ALL SUBJECTS FOR FOUR YEARS OF 1200 SENIORS OF DIFFERENT NATIONALITIES

I. Q. Quart-ers	A 93-100		B 85-92		C 78-84		D 70-77		E Below 70		Total No.
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	
<b>ITALIANS</b>											
Fourth	120	10.8	446	40.3	341	30.8	201	18.1	10	0.8	1118
Third	11	3.8	86	29.7	110	37.9	83	28.6	17	5.5	307
Second	3	1.8	37	22.3	77	46.4	49	29.5	3	2.0	169
First	1	0.5	38	21.5	69	38.7	70	39.3	14	7.3	192
Total	135	7.5	607	34.0	597	33.4	403	22.0	44	2.5	1786
<b>POLISH</b>											
Fourth	212	20.5	406	39.3	233	22.6	173	16.7	10	0.9	1034
Third	48	7.5	170	26.6	196	30.7	191	29.9	32	5.2	637
Second	11	4.7	58	24.9	70	30.0	90	38.7	4	1.7	233
First	4	3.8	21	19.8	41	38.6	38	36.0	2	1.9	106
Total	275	13.6	655	32.6	540	26.8	492	24.5	48	3.4	2010
<b>GERMANS</b>											
Fourth	51	10.4	273	55.7	125	25.5	41	8.4	--	--	490
Third	27	6.2	179	40.9	152	34.7	79	18.0	1	0.2	438
Second	28	5.7	193	39.3	183	37.3	82	16.7	5	1.0	491
First	7	1.5	94	19.4	195	40.3	184	38.0	4	0.8	484
Total	113	5.9	739	38.9	655	34.4	386	20.3	10	0.5	1903
<b>LITHUANIANS</b>											
Fourth	74	14.3	188	36.4	161	31.1	91	17.6	3	0.6	517
Third	46	8.6	196	36.8	165	31.0	122	22.9	4	0.7	533
Second	19	3.7	117	22.8	176	34.2	195	37.9	7	1.4	514
First	17	2.8	108	17.9	178	29.5	283	46.8	18	3.0	604
Total	156	7.2	609	28.1	680	31.3	691	31.9	32	1.5	2168
<b>AMERICANS</b>											
Fourth	66	10.9	273	45.1	191	31.5	76	12.5	--	--	606
Third	70	8.8	253	31.6	273	34.1	204	25.5	--	--	800
Second	19	3.8	106	21.1	196	39.0	181	36.1	--	--	502
First	10	1.8	91	15.8	198	34.4	275	47.8	1	0.2	575
Total	165	6.6	723	29.1	858	34.6	736	29.7	1	0.01	2483
<b>MIXED AMERICANS</b>											
Fourth	119	36.2	159	48.3	47	14.3	4	1.2	--	--	329
Third	129	26.8	245	50.8	78	16.2	30	6.2	--	--	482
Second	88	13.3	293	44.3	185	28.0	95	14.4	--	--	661
First	74	13.4	245	44.2	163	29.4	71	12.8	1	0.2	554
Total	410	20.2	942	46.5	473	23.3	200	9.9	1	0.1	2026

COMPARISON OF MARKS OF 1200 SENIORS IN THEIR SENIOR YEAR  
WITH THOSE MARKS OF THE THEORETICAL SCHOOL STANDARD

Procedure. The method of procedure used for the tabulating of all the marks of the 1200 seniors, in all the subjects they pursued for the senior year only, was similar to that of the method used in tabulating the intelligence quotients of these same seniors, for a comparison with their achievement. The intelligence quotients were placed in four vertical positions, ranging from the lowest quarter to the highest quarter, or from the first quarter to the fourth quarter, and on a horizontal plane, the grades A, B, C, D, and E, were placed. The A grade represented an achievement in class work between ninety-three and one hundred per cent; the B grade, between eighty-five and ninety-two per cent; the C grade, between seventy-eight and eighty-four per cent; the D grade, between seventy and seventy-seven per cent; and the E grade, Failure, or below seventy per cent. The actual tabulating was carried out in exactly the same manner as described on page 63, with the mixed Americans as an example.

Results. The mixed Americans lead with the greatest number of A and B grades, having 179 and 429 respectively, and with the smallest number of C and D grades, namely, 245 and eighty-four, with but one failure, the same number that the Italians have, only that of the mixed Americans is in

the first quarter while that of the Italians is in the third quarter. The true blood Americans are the only group that has no failures for the senior year.

The theoretical school standard of marking is as follows: there would be seven per cent each of A grades and Failures; twenty-four per cent each of B and D grades, and thirty-eight per cent of C grades. According to the data as given in Table X, page 80, the per cents for the true blood Americans and the Italians for A grades are the closest, for each has 6.8 and 6.9 respectively. The failures come nowhere near the mark, for out of a sum total of 5,950 marks for all subjects in the entire senior year only, there were only sixty failures, which would be about one per cent. However, while the Polish group had the greatest number of failures when all subjects for four years were considered and the Lithuanian group was second, it was found that when only the subjects in the senior year were taken into account, the Lithuanian group was first, having the greatest number, twenty-seven, which was five less than they had in all four years, and the Polish group was second, having only twenty-two, a little less than half of the failures for this same group for all subjects for four years. The German group that had but ten failures for all subjects for the four years have nine failures for just the senior years. The Lithuanian group



has a percentage of 2.9 for failures. These schools may have been following the "No Failure Program" as advocated by some superintendents, for the true blood Americans had none out of 1,051 marks; the mixed Americans had but one out of 938 marks, while the Italians had one out of 1,054 marks. For B grades, the Lithuanian group is closest with 28.2 per cent, while the German group has 37 per cent of C grades followed by the Italian group with 40.2 per cent or 2.2. per cent above, with the true blood American group having 35.4 per cent of C grades or 2.2. per cent below the theoretical school standard of marking.

For the other nationalities, the true blood Americans had 6.8 per cent of A grades; the Italians group had 6.6 per cent; the Polish group had nearly twice the seven per cent, while the mixed Americans had about two and one-half times seven per cent. This may have been due to the fact that teachers realizing the superior ability of the mixed American group either were more lenient in their marking or else they could do nothing else but give the grades they did because of the work turned in, or the assignments were not difficult enough for pupils of this type of mentality. The Lithuanian group, which is next to them with a number of pupils above average intelligence, comes closer to the standard system of marking for A and B grades; although their per cent is eight less for C grades, with nearly seven more for D grades, as has been

mentioned on the preceeding page, come nowhere near the seven per cent.

The Italians, who have approximately one-half of their two hundred pupils in the group for average mental ability, attained only sixty-eight A grades out of a sum total of 885 grades given to those pupils in the average mental ability group or in this case, in the third and the fourth quarter. From this same mental group, a little less than one-third had B and C grades, while the D grades were a little less than one-fifth of a possible 855.

The true blood Americans, who had a little more than three-fourths of their two hundred pupils in the average mentality group, were only able to attain sixty-seven A grades out of 816 marks given in the second, the third and the fourth quarter, for all grades. About two-fifths of these marks merited were B grades; a little better than one-third were C grades; while about one-fifth were D grades.

The Polish group had approximately one-half of their two hundred pupils in the average mentality class; still, they were only able to get 126 A grades, out of a possible 807 marks, which is nearly double that of the Italian group for the same mentality, and also double that of the true blood American group who had more than three-fourths of their

pupils in the average mentality group. These 126 A grades are equivalent to about sixteen per cent. For B grades they fared a little better with about thirty-seven per cent; their C grades were less, with about twenty per cent of a possible 807 marks for the third and fourth quarters.

The Germans have more than three-fourths of their two hundred pupils in and above the average mentality group, but from this number, they were only able to attain forty-two A grades, or about six per cent of a possible 741 marks. The B grades were close to forty-seven per cent; the C grades about thirty-three per cent; while the D grades, about 100, were fourteen per cent of the sum total of 741 marks.

Both the Italian group and the Polish group had one each who was able to attain an A grade and whose mentality was in  $Q_1$  and below average.

As one would expect, the greatest number of failures was found in the lowest quarter or the first quarter for the Lithuanian group, the mentality of these twelve being below ninety-three, but for the German group, the largest number was in the second quarter having four, while the Polish had their greatest number in the third quarter, where the mentality was average, being between ninety and 100, and that

of the German group was between ninety and 100, and that of the German group was between ninety-seven and one hundred four.

Since the Italian group had the largest number of their two hundred pupils, namely fifty, below eighty in mentality, one would expect them to have more failures, but as it has already been explained, their lack of failure was due to the subjects offered them when it was seen that they were failing in Academic work. This is one case where subjects were fitted to the mental ability of the pupils.

At the present time, there seems to be a trend toward a "no failure program" in the high schools, such as are found in some elementary, junior high and secondary schools. Weersing<sup>19</sup> says that there are certain large school systems that permit large numbers of pupils to go through high school without attempting to make them conform to the usual requirements for promotion and graduation. That is a point of view toward which some high schools seem to be leaning.

However, there is another point of view which is that pupils should measure up to certain standards as a basis

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<sup>19</sup>"On Behalf of the No-Failure Program", School Review XLVI, May 1938, p. 332, quoting Frederick J. Weersing in Sierra Educational News.

TABLE X

RELATIONSHIP BETWEEN THE MARKS OF 1200 SENIORS IN THEIR SENIOR YEAR AND THE MARKS OF THE THEORETICAL SCHOOL STANDARD

I. Q. Quart-ers	A 93-100		B 85-92		C 78-84		D 70-77		E Below 70		Total No.
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	
<b>ITALIANS</b>											
Fourth	60	9.1	250	37.9	240	36.4	110	16.6	--	--	660
Third	8	28.2	55	4.1	86	44.1	45	23.1	1	0.5	195
Second	3	2.3	28	21.4	67	51.1	33	25.2	--	--	131
First	1	1.5	12	17.6	31	45.6	24	35.3	--	--	68
Total	72	6.8	345	32.8	424	40.2	212	20.1	1	0.1	1054
<b>POLISH</b>											
Fourth	103	21.5	197	41.0	100	20.9	77	16.0	3	0.6	480
Third	23	7.0	100	30.6	106	32.4	86	26.3	12	3.7	327
Second	6	4.4	33	24.3	38	27.9	53	39.0	6	4.4	136
First	1	1.7	15	25.0	21	35.0	22	36.6	1	1.7	60
Total	133	13.3	345	34.4	265	26.4	238	23.7	22	2.2	1003
<b>GERMANS</b>											
Fourth	21	7.4	161	56.5	77	27.1	26	9.1	--	--	285
Third	8	4.0	88	44.2	68	34.2	33	16.6	2	1.0	199
Second	12	4.7	97	37.9	103	40.2	40	15.6	4	1.6	256
First	3	1.3	32	13.9	111	48.0	82	35.5	3	1.3	231
Total	44	4.5	378	38.9	359	37.0	181	18.6	9	1.0	971
<b>LITHUANIANS</b>											
Fourth	38	15.5	96	39.0	68	27.6	41	16.7	3	1.2	246
Third	22	10.2	69	32.1	74	34.4	44	20.5	6	2.8	215
Second	10	4.9	47	23.0	65	31.9	76	37.3	6	2.9	204
First	6	2.4	51	20.0	74	27.6	125	46.6	12	4.4	268
Total	76	8.2	263	28.2	281	30.1	286	30.6	27	2.9	933
<b>AMERICANS</b>											
Fourth	39	11.4	182	53.2	89	26.0	32	9.4	--	--	342
Third	23	7.7	98	32.9	122	40.9	55	18.5	--	--	298
Second	5	2.8	40	22.7	70	39.8	61	34.7	--	--	176
First	4	1.7	40	17.0	91	39.8	100	42.5	--	--	235
Total	71	6.8	360	34.2	372	35.4	248	23.6	--	--	1051
<b>MIXED AMERICANS</b>											
Fourth	41	36.0	51	44.7	22	19.3	--	--	--	--	114
Third	64	25.4	122	48.4	47	18.7	19	7.5	--	--	252
Second	48	13.6	156	44.2	111	31.4	38	10.8	--	--	353
First	26	11.9	100	45.7	65	29.7	27	12.3	1	0.4	219
Total	179	19.1	429	45.7	245	26.1	84	9.0	1	0.1	938

Per Cent

30

20

10

0

Grades

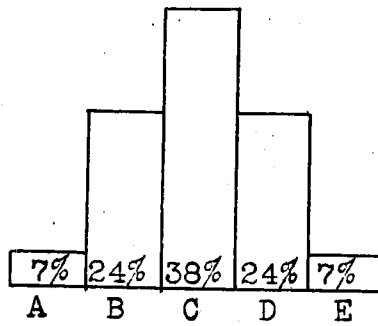


FIGURE 31  
THEORETICAL SCHOOL STANDARD

40

30

20

10

0

Grades

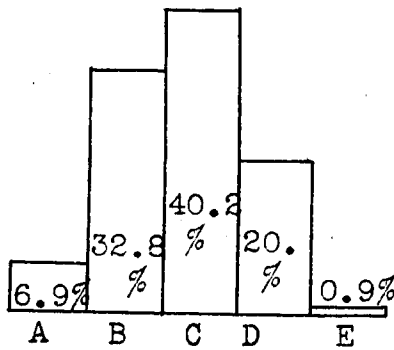


FIGURE 32  
ITALIANS

30

20

10

0

Grades

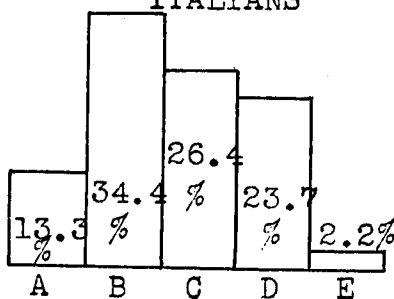


FIGURE 33  
POLISH

40

30

20

10

0

Grades

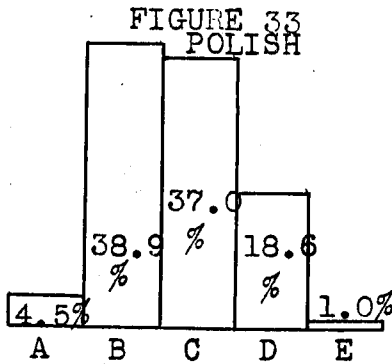


FIGURE 34  
GERMANS

COMPARISON OF MARKS IN SENIOR YEAR WITH THEORETICAL SCHOOL STANDARD

Per Cent

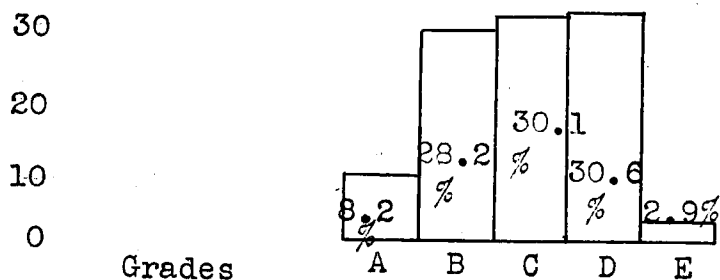


FIGURE 35  
LITHUANIANS

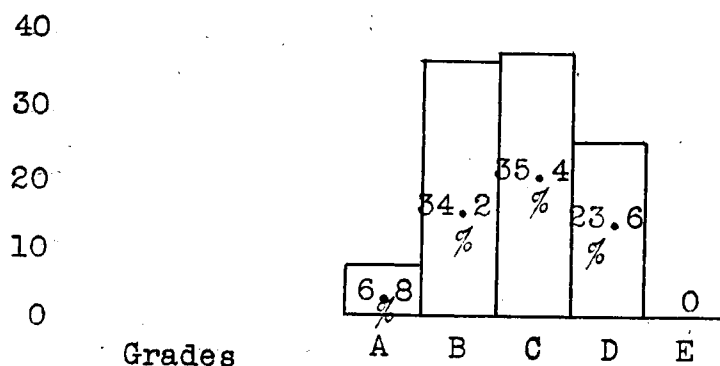


FIGURE 36  
AMERICANS

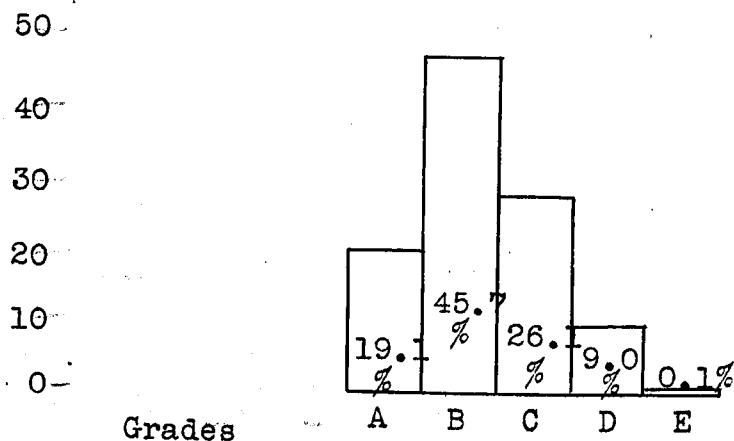


FIGURE 37  
MIXED AMERICANS

COMPARISON OF MARKS IN SENIOR YEAR WITH THEORETICAL SCHOOL STANDARD

for promotion, and this is summed up by Bagley<sup>20</sup> who states that failures are unpleasant and if repeated are costly and often are not very effective. Still, if there is no stimulus to keep the pupil to his task, it is an injustice both to him and to society which has a stake in his effective education in that we place a stigma, so to speak, upon his failure by the inference that it is a symptom of his weakness.

Speaking both for colleges and for secondary schools, the late President Coffman<sup>21</sup> of the University of Minnesota says that we become sentimental when failure is mentioned and do not think enough of the social waste that will follow if we continue our pampering and our indulging the pupil in his irresponsible practices. If we glance at the history of civilization and at the problems of present day society, it seems as if there was never a time when pupils needed more to be held strongly to high standards, and to a maximum of effort on assignments than the present time.

A number of superintendents of schools seem to take

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<sup>20</sup>William C. Bagley, "Is Subject Matter Obsolete?" *Educational Administration and Supervision*, XXI, September 1935, p. 411.

<sup>21</sup>L. D. Coffman, "The Chairman's Address--A Special Plea for Education," Educational Record, XVII, July 1936, pp. 370-372.



the same attitude as that expressed by President Coffman. Tildsley,<sup>22</sup> the former assistant superintendent of the New York City schools pleads for standards in education based on ability. Superintendent Miller, of the Saginaw, Michigan schools, affirms: "In seeking to avoid for its pupils the habit of failure, the schools tolerate the formation of the still worse habit of expecting success without due effort, and neglect to establish realistic standards which will be operative beyond school life."<sup>23</sup>

The attitude of these superintendents seems to be that pupils should be held to an accomplishment in proportion to their mental ability. In only one of the schools used in this study, as far as could be determined, and that was the school in which the greatest number of Italians was found, was the basis of achievement or ability grouping used. The grouping seems to be done according to subjects but to no great extent for levels of ability as measured by marks that are earned in subjects.

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<sup>22</sup>John L. Tildsley, The Mounting Waste of the American Secondary School, The Inglis Lecture, 1936. Cambridge: Harvard University Press, p. 91.

<sup>23</sup>Keeping Abreast of the Times," Phi Delta Kappan, XX, February 1938, p. 207.

From the standpoint of pupil adjustment to the school and to the school curriculum offered, the failure rate is very important, and is a reflection not only of intelligence but also of other factors.

The majority of schools require pupils to take English, one year of mathematics, which is usually algebra, although sometimes it is general mathematics, one year of Latin, American History, and biology; while the remainder of units of credit are to be obtained from the subjects offered, namely, higher mathematics, more years of language, another science or commercial subjects were offered. To handle successfully the academic subjects under present conditions requires more than the average mental ability.

In general, failure will be found among pupils in all levels of intelligence, with the exception, perhaps, of the highest step intervals, but the lower the intelligence level, the greater the percentage of failures in academic subjects.

## CHAPTER V

### COMPARISON OF INTELLIGENCE QUOTIENTS WITH HIGH AND LOW AVERAGES

Problem. The endeavor in Chapter V was to see what relation exists between: (1) high intelligence quotients and class averages for four years; (2) low intelligence quotients and class averages for four years; (3) high class averages and intelligence; and (4) low class averages and intelligence quotients.

Procedure. In selecting the high intelligence quotients, all those pupils who were above average in intelligence or who had intelligence quotients of 110 or above were chosen, while for the low intelligence quotients, all those pupils who were below eighty in intelligence were selected. For the high averages, only those seniors with an average of ninety or above were selected, while for the low averages, only those seniors whose averages were between seventy and seventy-seven or approximately a D grade were chosen.

The intelligence quotients were grouped in intervals of two beginning with the intelligence quotient of 110 and the class averages were grouped in intervals of three starting with seventy-six and going on up to ninety-six.

Results. As shown in Table XI, each nationality has its greatest number of averages in the group eighty-five to eighty-seven, for high intelligence, with the exception of the Polish group, the American group, and the mixed American group. Of these three groups, the Polish have the largest number in the group of averages, eighty-eight to ninety, with nine, the same number that the Lithuanian group has in the group of averages, eighty-five to eighty-seven; the American group has its largest number, six, in the group of averages, eighty-two to eighty-four, while the mixed Americans have their greatest number, forty-nine, in the group of averages, ninety-one to ninety-three. All nationalities have at least one in the group of highest averages, ninety-four to ninety-six, except the Lithuanians, who have none. The Lithuanians, alone, have two in the group of lowest averages, seventy-three to seventy-five.

It is very noticeable that the mixed American group has not only the largest number, one hundred ten, of high intelligence quotients, but also the greatest number, eighty-six, in the groups of averages from eighty-eight to ninety-six. This same group has thirteen with averages from ninety-four to ninety-six, and the intelligence quotients of the pupils attaining these averages range from 122 to 147, while in the other nationalities the range of intelligence is from one hundred ten to 118.

TABLE XI

COMPARISON OF INTELLIGENCE QUOTIENTS ABOVE NORMAL AMONG  
1200 SENIOR HIGH SCHOOL PUPILS WITH THEIR AVERAGES  
ACHIEVED

Intelli- gence Quotients	A V E R A G E S							TOTAL
	94- 96	91- 93	88- 90	85- 87	82- 84	79- 81	76- 78	
<u>ITALIANS</u>								
118-119								
116-117								
114-115			1	1	1	1	1	5
112-113			1	3	1	-	-	5
110-111	1	1	2	2	2	-	2	10
<u>Total</u>	<u>1</u>	<u>1</u>	<u>4</u>	<u>6</u>	<u>4</u>	<u>1</u>	<u>3</u>	<u>20</u>
<u>POLISH</u>								
118-119		1	-	-	-	-	2	3
116-117		-	3	-	-	-	-	3
114-115		3	1	-	-	-	-	4
112-113	1	1	2	-	-	-	-	4
110-111	-	1	3	2	2	-	-	8
<u>Total</u>	<u>1</u>	<u>6</u>	<u>9</u>	<u>2</u>	<u>2</u>	<u>-</u>	<u>2</u>	<u>22</u>
<u>GERMANS</u>								
122-123			1	-	-			1
120-121			3	3	1			7
118-119			5	1	-			6
116-117		1	2	1	1			5
114-115	1	1	1	5	1	3		12
112-113		2	1	3	-	2	1	9
110-111		2	2	3	1	3		11
<u>Total</u>	<u>1</u>	<u>6</u>	<u>15</u>	<u>16</u>	<u>4</u>	<u>8</u>	<u>1</u>	<u>51</u>

TABLE XI (continued)

COMPARISON OF INTELLIGENCE QUOTIENTS ABOVE NORMAL AMONG  
1200 SENIOR HIGH SCHOOL PUPILS WITH THE AVERAGES  
ACHIEVED

Intelli- gence Quotients	A V E R A G E S								Total
	94- 96	91- 93	88- 90	85- 87	82- 84	79- 81	76- 78	73- 75	
<u>LITHUANIANS</u>									
142-143		-	1						1
140-141		-	-						0
138-139		-	-						0
136-137		-	-	1					1
134-135		-	1	-	-	-	1		2
132-133		1	-	1					2
130-131		1	1	-	-	1	-		3
128-129		-	-	1	1	-	-		2
126-127		-	-	-	-	-	-		0
124-125		-	-	-	-	1	-		1
122-123		-	-	1	1	1	1		4
120-121		1	1	1	1	-	-		4
118-119		-	-	-	1	1	-		2
116-117		-	1	1	-	2	-		4
114-115		-	2	-	1	-	1	1	5
112-113		2	-	1	-	-	-	-	3
110-111		-	-	2	1	1	2	1	7
<b>Total</b>		5	7	9	6	7	5	2	41
<u>AMERICANS</u>									
118-119	1	1	-	1	2	-	-	-	5
116-117	-	-	1	1	-	-	-	-	2
114-115	-	-	-	3	1	-	-	-	4
112-113	-	-	-	-	-	1	-	-	1
110-111	-	-	3	-	3	1	1	-	8
<b>Total</b>	1	1	4	5	6	2	1	-	20

TABLE XI (Continued)

COMPARISON OF INTELLIGENCE QUOTIENTS ABOVE NORMAL AMONG  
1200 SENIOR HIGH SCHOOL PUPILS WITH THE AVERAGES  
ACHIEVED

Intelli- gence Quotients	A V E R A G E S								TOTAL
	94- 96	91- 93	88- 90	85- 87	82- 84	79- 81	76- 78	73- 75	
<b>MIXED AMERICANS</b>									
146-147	1								1
144-145	-	-	-	-	-	-	-	-	0
142-143	1	-	-	-	-	-	-	-	1
140-141	-	-	-	-	-	-	-	-	0
138-139	-	1	-	2	-	-	-	-	3
136-137	-	2	-	-	-	-	-	-	2
134-135	-	3	-	-	-	-	-	-	2
132-133	-	2	-	3	-	-	-	-	5
130-131	2	4	1	-	-	-	-	-	7
128-129	3	2	2	2	-	-	-	-	9
126-127	2	3	5	1	-	1	-	-	13
124-125	1	6	5	2	-	-	1	-	15
122-123	2	2	-	3	1	-	-	-	8
120-121	-	4	3	-	-	-	-	-	7
118-119	-	7	1	-	-	-	-	-	8
116-117	-	6	1	-	-	-	-	-	7
114-115	-	5	1	-	-	-	-	-	6
112-113	-	2	3	-	-	-	-	-	5
110-111	-	-	2	-	3	1	3	-	10
<b>TOTAL</b>	<b>13</b>	<b>49</b>	<b>24</b>	<b>14</b>	<b>4</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>110</b>

Of all these nationalities, the mixed Americans show the greatest number, one hundred ten, for high intelligence quotients; the Germans have approximately half that number, fifty-one; the Lithuanians, a little more than a third, or forty-one, and the Italians, Polish and Americans, each have approximately a fifth, with twenty or twenty-two.

#### LOW INTELLIGENCE QUOTIENTS AND AVERAGES

Procedure. For low intelligence quotients, all those below eighty were used, so they ranged from sixty-four up to seventy-nine, while the averages were from seventy to eighty-six. The interval for the intelligence quotient was two, and for the average, the interval was three. These were tabulated in the following manner: The Italian group had a pupil with an intelligence quotient of seventy-eight and an average of eighty-five, so one was placed to the right of the intelligence group seventy-eight to seventy-nine and in the column for average marked eighty-four to eighty-six. All the remaining pupils who had intelligence quotients below eighty were tabulated in like manner.

Results. According to Table XII, the Italians lead with the greatest number of low intelligence quotients, namely, thirty, with the Polish group, second, with twenty-one. The Germans and Americans have the smallest number, three each,



and the mixed Americans do not have any with intelligence quotients below eighty. In fact, in this study the lowest intelligence quotient for the mixed American group was between one hundred and 104. Of the thirty Italians of low intelligence, twenty attained averages from seventy-five to eighty. This, no doubt, was due to the fact that the work was given according to their ability as has been explained in the preceding chapter. The Italians, too, were the only ones to achieve an average above eighty, and they had five; two of these were in the group of averages eighty-four to eighty-six, and three, in the group of averages eighty-one to eighty-three. The Polish and Lithuanians were only able to attain five and three respectively in the group of averages seventy-eight to eighty. The Germans had their three in the two groups of averages seventy-two to seventy-four, and seventy-five to seventy-seven, while the Americans had their three in the groups sixty-nine to seventy-one and seventy-two to seventy-four. This would seem to be in keeping with their intelligence quotients, for in the case of the Germans, the intelligence quotients ranged from seventy to seventy-seven, while in the case of the Americans, the intelligence quotients ranged from seventy-four to seventy-nine. The range of the intelligence quotients of the Italians was from sixty-four to seventy-nine, while that of the Lithuanians was from sixty-eight to seventy-nine.

TABLE XII

COMPARISON OF LOW INTELLIGENCE QUOTIENTS AMONG 1200 SENIOR HIGH SCHOOL PUPILS OF VARIOUS NATIONALITIES WITH THE AVERAGES ACHIEVED FOR FOUR YEARS

Intelligence Quotients	A V E R A G E S						TOTAL
	84-86	81-83	78-80	75-77	72-74	69-71	
<b>ITALIANS</b>							4
78-79	1		2	1			15
76-77	1	1	5	8			3
74-75			2	1			4
72-73				1	3		1
70-71					1		1
68-69		1					1
66-67							0
64-65		1				1	2
<b>Total</b>	<b>2</b>	<b>3</b>	<b>9</b>	<b>11</b>	<b>4</b>	<b>1</b>	<b>30</b>
<b>POLISH</b>							
78-79				3		1	4
76-77			2	2	1	1	6
74-75			1	2	2	1	6
72-73			2	1	1		4
70-71						1	1
<b>Total</b>			<b>5</b>	<b>8</b>	<b>4</b>	<b>4</b>	<b>21</b>
<b>GERMANS</b>							
76-77				1			1
74-75							0
72-73					1		1
70-71					1		1
<b>Total</b>				<b>1</b>	<b>2</b>		<b>3</b>
<b>LITHUANIANS</b>							
78-79				1		1	2
76-77							0
74-75							0
72-73							0
70-71			3				3
68-69					1		1
<b>Total</b>			<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>6</b>
<b>AMERICANS</b>							
78-79					1		1
76-77					1		1
74-75						1	1
<b>Total</b>					<b>2</b>	<b>1</b>	<b>3</b>

## COMPARISON OF HIGH AVERAGES WITH INTELLIGENCE QUOTIENTS

Procedure. As has already been stated, only those pupils who had an average of ninety or above were selected and their averages were arranged in intervals of two, while the intelligence quotients were grouped in intervals of ten starting with the eighty to ninety group and going up to above 140 or above the genius group. These were tabulated in the same manner, as has already been mentioned, on the preceding pages.

Results. In Table XIII, it is seen that there is very little difference between the numbers with high averages and intelligence quotients above 110 as compared with Table XI, pages eighty-eight and eighty-nine, that has the high intelligence quotients and averages from ninety-six down, if we consider only the averages ninety and above and the intelligence quotients 110 and above. However, it is very noticeable that in Table XI there are some pupils with intelligence quotients above normal who had very low averages as in the group seventy-three to seventy-five, while in Table XIII there are some pupils who have attained averages ninety or above and are found in the intelligence group eighty to ninety. The Polish had two in this group that achieved an average between ninety and ninety-two, and the Lithuanians had one in the same intelligence group and group of averages, just as the former had two of high in-

telligence with averages in the group seventy-six to seventy-eight, while the Lithuanians had two of high intelligence in the group of averages seventythree to seventy-five, as shown in Table XI, page eighty-nine.

The mixed Americans have the greatest number of high averages, just as they had the greatest number of pupils with intelligence quotients above normal or above one hundred ten. However, all these nationalities have their largest number for high averages in the intelligence group, one hundred ten to one hundred twenty, or the superior group, with the exception of the Italians, the Polish, the Americans, and the mixed Americans. Of the last four groups mentioned, the first three of them have their largest number in the normal or average group of intelligence, and the mixed Americans have theirs in the very superior group of intelligence. The only ones to have any for high averages in the above genius group for intelligence were the mixed Americans.

#### COMPARISON OF LOW AVERAGES WITH INTELLIGENCE QUOTIENTS

Procedure. Those seniors who had averages from seventy to seventy-seven were selected, and these averages were placed in groups of twos on a vertical plane, while the intelligence quotients were placed on a horizontal plane with intervals of ten. Taking the Italians for an example, there were two with averages in the group seventy-six and seventy-seven but their

TABLE XIII

COMPARISON OF HIGH AVERAGES AMONG 1200 SENIOR HIGH SCHOOL PUPILS WITH THEIR RESPECTIVE INTELLIGENCE QUOTIENTS

HIGH AVER- AGES	INTELLIGENCE QUOTIENTS						TOTAL
	Genius Above	Very 130- 140	Superior 120- 130	Superior 110-120	Normal 100- 110	90- 100	
<u>ITALIANS</u>							
94-95				1			1
92-93					1	1	2
90-91				2	6	1	9
Total				3	7	2	12
<u>POLISH</u>							
92-93				2	1	1	4
90-91				9	6	5	22
Total				11	7	6	26
<u>GERMANS</u>							
94-95				1	1		2
92-93				6			6
90-91			1	4	5		10
Total			1	11	6		18
<u>LITHUANIANS</u>							
92-93		2		1	1		4
90-91			1	2	2	1	6
Total		2	1	3	3	1	10
<u>AMERICANS</u>							
94-95				1			1
92-93				1	5		6
90-91				2	8	1	11
Total				4	13	1	18
<u>MIXED AMERICANS</u>							
96-97	1		10				1
94-95	1	2	10	2			15
92-93		4	10	8			22
90-91		3	11	15	4	2	35
Total	2	9	31	25	4	2	73

intelligence quotients were between one hundred ten and one hundred twenty, so a two was placed to the right of the respective average and in the column of the above mentioned intelligence. All the other low averages were tabulated in like manner.

Results. For the low averages, just as for the low intelligence quotients, the mixed Americans are not represented, that is, according to the averages selected and the intelligence quotients chosen for this study, see Table XIV.

The Lithuanians have the greatest number of low averages, although the Italians had the greatest number of low intelligence quotients. In fact, the number of Lithuanians for low averages is nearly twice that of the low intelligence quotients of the Italians, the former, having fifty-five and the latter, thirty. The Americans are second with the greatest number, forty-seven; the Polish, third, with thirty-one, and the Italians and Germans with approximately the same number, twenty-three and twenty-two. The Lithuanians and the Italians have exactly the same number, thirty-three, in the normal intelligence group for low averages, while the other nationalities are in this order: the Polish, the Italians, and the Germans, with twenty, seventeen, and fifteen, respectively in this same intelligence group. According to Table XIV, there are many with normal intelligence who attain low averages, just as in Table XII, page ninety-three, there were some with low intelligence who achieved averages in the eighties.

TABLE XIV

COMPARISON OF LOW AVERAGES AMONG 1200 SENIOR HIGH SCHOOL  
PUPILS OF VARIOUS NATIONALITIES WITH THEIR RESPECTIVE  
INTELLIGENCE QUOTIENTS

LOW AVERAGES	INTELLIGENCE QUOTIENTS						TOTAL
	Superior 110-120	Normal 100- 90- 110 100	Dullness 80-90	Borderline Deficiency 70-80	Feeble- minded Below 70		
<u>ITALIANS</u>							
76-77	2	2	10	2			16
74-75		1	2		1		4
72-73			1				1
70-71			1	1			2
Total	2	3	14	3	1		23
<u>POLISH</u>							
76-77	1	4	12	3			20
74-75		1	1	3			5
72-73		1	1	2			4
70-71				2			2
Total	1	6	14	10			31
<u>GERMANS</u>							
76-77	1	7	4	3			15
74-75		1	2	1	1		5
72-73			2	1			2
70-71							0
Total	1	8	7	5	1		22
<u>LITHUANIANS</u>							
76-77	2	8	9	4	1		24
74-75	1	6	5	6		1	19
72-73	1		2	3			6
70-71		1	2	2	1		6
Total	4	15	18	15	2	1	55
<u>AMERICANS</u>							
76-77		6	12	4	3		25
74-75		1	11	2			14
72-73			2	5			7
70-71			1				1
Total		7	26	11	3		47

## CHAPTER VI

### SUMMARY AND CONCLUSIONS

Summary. This study shows that all nationalities have the greatest number of the two hundred selected senior pupils entering their freshman year at the chronological age from fourteen to fourteen and a half years, and that all but the mixed Americans have some entering between the ages fifteen and a half and sixteen and a half.

Mental Ages. The mental ages of the mixed Americans entering high school are higher than the average in the majority of cases; there are very few of them found in the average age-group fourteen to fourteen-five; none are found below this group and all the other nationalities are found in the groups below the mental age level of fourteen years with per cents varying from twenty-nine to forty-three.

Averages. The mixed Americans middle fifty per cent is the highest of all the nationalities, for the range of averages is from eighty-three to eighty-five with eight, up to ninety-one to ninety-three with nine. Further, the mixed Americans have no averages below seventy-five and their highest averages are ninety-six with five, while the Polish have but two with a like average and the Americans, but one.

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Intelligence. The lowest intelligence quotient is found among the Italians in the group sixty-five to sixty-nine, while the highest intelligence quotient is found among the mixed Americans in the group 145-149. The greatest number, fifty-five for any group of intelligence is found in the mixed Americans in the group 115-119. The mixed Americans have the highest range for their middle fifty per cent, starting with ten in the intelligence group 110-114 and extending up to thirty-five in the group 120-124. The Italians have the lowest range starting as they do with ten in the group eighty to eighty-four and extending up to eleven in the group ninety-five to ninety-nine. The mixed Americans have none below one hundred in intelligence. The Polish, the Italians, the Lithuanians, and the Americans comprise approximately twenty-three per cent of the entire group of twelve hundred seniors that are below normal intelligence, which leads one to infer that the increase in enrollment in high schools includes many of below-average intellectual ability. Therefore, the mean mental and mean chronological ages of those entering high school is not only lowered, but the per cent of those graduated who are below normal intelligence is also increased.

Achievement and mental ability. The Germans have the lowest number of A grades as well as the lowest per cent of the B grades, the Italians have the lowest number but not the

lowest per cent. For the C grades, the mixed Americans have the lowest and the Americans have the highest. For the D grades the mixed Americans have the lowest number as well as the lowest per cent, while the Americans have the largest number but not the highest per cent for the Lithuanians have the highest per cent, 31.9. The mixed Americans have the largest number of A and B grades with the smallest number of C and D grades, and also the smallest number of failures, only one. The Polish had the largest number of failures, forty-eight; the Italians, forty-four, and the Lithuanians, thirty-two.

Relationship between intelligence and achievement. According to Table IX, page seventy-two, there seems to be a very definite relationship between intelligence and achievement for the greatest numbers are found in the fourth quarter for A and B grades with very few exceptions. The mixed Americans seem to be the best both for intelligence and achievement, as they lead in both the number and per cent of A and B grades, and have the lowest number as well as per cent of both C and D grades, with only one failure and that one is in the lowest quarter. The Americans have the greatest number as well as per cent for C grades, but while they have the greatest number for D grades, the Lithuanians have the highest per cent for these grades.

Relationship between marks achieved and marks of the theoretical school standard. Here, too, the mixed Americans

lead with the greatest number of both A and B grades, 179 and 429, and the smallest number of C and D grades, 245 and eighty-four. The Americans and the Italians come closest to the seven per cent for A grades, with 6.8 each. The Lithuanians come close to the 7.0 and 24 per cents for A and B grades, but their C grades lack about 8.0 per cent of the 38.0, while that of the Germans lacks but 1.0 per cent of the 38.0.

Intelligence and averages. For high intelligence quotients above normal, the mixed Americans lead with 110 and they also have the greatest number of averages from eighty-eight to ninety-six, namely, eighty-six. For low intelligence quotients the Italians have thirty and the Polish twenty-one. The Germans and Americans have three each, while the mixed Americans do not have any in this study with intelligence quotients below eighty.

Averages and intelligence. The mixed Americans are not represented for they had none in the group of averages from seventy to seventy-seven. The Lithuanians had the greatest number of low averages, fifty-five, but the Italians had the largest number of low intelligence quotients, thirty. The Lithuanians and Americans have the same number, thirty-three, in the normal intelligence group.

Conclusions. The group of mixed Americans showed their superiority in practically every phase of this study and out-classed the other five nationalities in their uniformity and

consistency. Their chronological ages were more in keeping with the assumed age one would expect for entrance into high school; their mental ages, in the vast majority of cases, were above normal, even reaching the above genius group; they progressed steadily and in some cases rapidly, as their age at graduation showed; none were found in the mental age-groups, ten, eleven, and twelve; they were a more homogeneous group as shown by the Q and SD; the median was lowest for the chronological ages and highest for the mental ages; the median for intelligence quotients was 118.64 the highest of all nationalities; they had the highest range of intelligence quotients for their middle fifty per cent from 110 up to 124; they rank highest for achievement and mental ability having the greatest number of A and B grades and the smallest number of C and D grades, with only one failure; for high intelligence quotients and averages, they have approximately twice that of the German group, which has fifty-one; not one mixed American is found in the group of low intelligence as found in this study, nor any below normal intelligence; nor is there a mixed American in the low average group; however, they have seventy-three high averages for those pupils with intelligence normal and above, while they have 110 pupils of intelligence above average in their group.

Recommendations. It would be interesting to know just what combinations of nationalities would produce those pupils

of high intelligence. According to the definition given in this study, a mixed American is any one whose mother or father is an American and the other parent, a German, an Irishman, an Italian, or any other nationality. Would an American and a Jew, an American and an Irishman, an American and an Italian, an American and a Scandinavian, or any other combination with an American show just which would be instrumental in giving to education those of superior intelligence?

As teachers, we should strive to teach pupils and not so much subject matter. In all schools, except one, as far as could be ascertained, subject matter was not fitted to the mentality of the pupils.

An understanding of home environment regarding pupils would eradicate many difficulties in class work.

A better understanding of the pupil's emotional stability, industry, zeal, good will, the accident of class, the circumstance of sex, his attitude toward school work and toward his teachers, and his satisfactory adjustment to school conditions would influence in no small way the teacher's marks and the pupil's progress.

Besides the combinations mentioned in the first paragraph, a study could be made to see if Irish and German, German and French, French and Italian, Italian and German, would

accelerate or retard the intelligence.

A teacher's association with pupils in extra-curricular activities, conferences with pupils, both the number and the amount of time spent in conferences with pupils, associations with pupils in class during previous semester together with classes of moderate size instead of larger size would help greatly to bring about a bond of sympathy between pupils and teachers and aid the pupils in doing much better work.

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APPENDIX

School \_\_\_\_\_ City \_\_\_\_\_

Your Name \_\_\_\_\_

Birthplace \_\_\_\_\_  
                        City                                  State  
                        or  
                        Country \_\_\_\_\_

MOTHER'S SIDE

Birthplace of your

Mother \_\_\_\_\_

Grandmother \_\_\_\_\_

Great-Grandmother \_\_\_\_\_

Mother's Father \_\_\_\_\_

Mother's Grandfather \_\_\_\_\_

Mother's Great-Grandfather \_\_\_\_\_

FATHER'S SIDE

Birthplace of your

Father \_\_\_\_\_

Grandfather \_\_\_\_\_

Great-Grandfather \_\_\_\_\_

Father's Mother \_\_\_\_\_

Father's Grandmother \_\_\_\_\_

Father's Great-Grandmother \_\_\_\_\_

For Birthplace, give City and State. If you or your relatives are born in a foreign country, give the name of the country.