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A comparative study of the intelligence, achievement, and personality of a group of boy and girl scouts and a corresponding group of delinquent boys and girls

Jeanne L. Willis
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A COMPARATIVE STUDY OF THE INTELLIGENCE, ACHIEVEMENT,
AND PERSONALITY OF A GROUP OF BOY AND GIRL
SCOUTS AND A CORRESPONDING GROUP OF
DELINQUENT BOYS AND GIRLS

A THESIS
SUBMITTED TO THE FACULTY OF THE SCHOOL OF EDUCATION, ATLANTA
UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF ARTS

BY
JEANNE L. WILLIS

SCHOOL OF EDUCATION

ATLANTA UNIVERSITY

JULY, 1951
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CHAPTER I

INTRODUCTION

Rationale of Problem.-- In every culture there are certain individual problems characteristic of various age groups. To some degree these problems stem from the same root, the adjustment process.

Adjustment can be defined as a satisfactory relation of an organism to its environment. Environment consists of all surrounding forces which might influence an organism in its effort toward maintenance. The environment may be threefold, the physical, the social, and the self.\(^1\)

The inability of an individual to make a satisfactory adjustment to his environment constitutes the basis for many conflicts and problems. Thus, in most instances, juvenile delinquency, basically characteristic of the adolescent period, is an outgrowth of adolescent conflicts. The period of adolescence has been singled out for study because it has been shown by \(^2\) 
Luella Cole, Elizabeth Hurlock, and other authorities on adolescence, that it is during this phase of life that delinquency is at its peak.

While we have delinquency thriving during the adolescent period there are also numerous boys and girls who are seemingly making satisfactory adjustments to their adolescent problems. In some instances the types of adjustments made to various situations depends to a large extent upon the individual's role in society, and his social status.

Statement of Problem.-- In this study the writer chose to compare a

\(^1\) L. F. Shaffer, The Psychology of Adjustment (New York, 1949), p. 44.
\(^3\) Elizabeth Hurlock, Adolescent Development (New York, 1949), p. 385.
group of delinquents with a corresponding group of adolescents who are held in high esteem by society and are members of an organization which is nationally known as a character building agency, namely, the Boy and Girl Scouts of America. The factor of social class was handled as a controlled variable.

The writer felt that if organizations such as the Boy and Girl Scouts of America have any influence in improving the personality development and mental traits of adolescent boys and girls they might also prove valuable in assisting the delinquent to cope with his or her adjustmental problems.

Purpose of the Study. -- It was the purpose of this study to compare a group of fifty middle and lower-class Negro Boy and Girl Scouts with a corresponding group of delinquents to determine the statistically reliable differences, if any, between the two groups in the following variables:

1) Intelligence as measured by the Otis Self-Administering Test of Mental Ability, Intermediate Examination: Form B for Grades 4-9, by Arthur S. Otis.


3) Personality as measured by the Aspects of Personality Inventory by Rudolf Pitner, John J. Loftus, George Forlano, and Benjamin Alster for Grades 4-9.

If differences in the personality and mental traits actually exist between the two groups when outside factors such as social class and sex are held constant, this study was designed to determine what implications this, and other studies reviewed in the survey of related literature have
concerning some of the basic reasons for the differences.

**Definition of Terms.**—It is essential that any area of research include definitions of the specific terms which are used in the study. For the purpose of this study an operational definition, which is a behavioristic approach to knowledge arguing that the meaning of any term is equivalent to the operations it calls forth, is applicable to all of the variables being tested. Hence, intelligence was here defined as being that which a particular intelligence test tests; achievement is what an achievement is what an achievement test tests; and personality is what a particular personality inventory measures.

The terms lower-middle (LM) class and upper-lower (UL) class, as used here, are defined in accordance with Warner's Index of Status Characteristics, and are defined in full on pages 6 and 7 in the section concerned with the survey of related literature.

Delinquency is more loosely defined than crime. This term, usually applied to the conduct of children or adolescents, is indicative of a new trend in penology, which attempts to shift the emphasis from the act of crime to the person who performs that act. Thus, in Illinois, and Atlanta, the law does not define delinquencies as it does crimes but it defines the delinquent child. The definition follows:

"Delinquent Child" defined. Sec. I. Be it enacted by the People of the State of Illinois, represented in the General Assembly: That for the purposes of this Act a delinquent child is any male who under the age of 17 years, or any female who while under the age of 18 years, violates any laws of the State; or is incorrigible, or knowingly associates with thieves, vicious or immoral

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1 George W. Hartmann, *Educational Psychology* (New York, 1941), p. 106.
persons; or without just cause and without consent of its parents, guardian or custodian absents itself from its home or place of abode, or is growing up in idleness or crime; or knowingly frequents a house of ill repute; or knowingly frequents any policy shop or place where gambling device is operated; or frequents any saloon or dram-shop where intoxicating liquors are sold; or patronizes or visits any public pool room or bucket shops; or wanders about the streets in the night time without being on any lawful business or lawful occupation; or habitually wanders about any railroad yards or tracks or jumps or attempts to jump onto any moving train; or enters any car or engine without lawful authority; or uses vile, obscene, vulgar, or indecent language in any public place or about any school house; or guilty of indecent or lascivious conduct.¹

Sociologically, crime and delinquency are types of non-conformity that have been defined by laws as threats to or violations of the stability and security of society or its individual members. Their existence implies that those who commit the non-conforming acts are not well integrated into the society, although they may be integrated into a smaller organized group that is at variance with society as a whole.... Such a group may simply wish to maintain a unique way of life, or it may be organized to prey on the larger society.

The two concepts of crime as lawbreaking and as non-conforming are opposed to each other. The first, or legal approach, places the emphasis on a fixed group of rules and obedience to them, without much regard for the psychological or social process of which the lawbreaking is the end result. The second, the sociological approach, places the emphasis on the relation of the individual to his social group or groups, and inquires into the process whereby conduct defined as criminal is developed. The sociological implies a third approach, the psychological, which examines the abilities, attitudes, and motives of the person who is a non-conformer of the kind called criminal.²

The terms Boy Scout and Girl Scout as used here refer to any boy or girl who has paid the annual membership fee and is enrolled as an active member in either the Boy Scouts of America or the Girl Scouts of America.

Survey of Literature.-- It is generally accepted that scout organizations are comprised mainly of middle class children while the delinquent group consists mainly of lower class individuals.

In studies made by Katherine DuPre Lumpkin and Morris Gilmore Caldwell on the economic status of families of delinquent boys and girls in Wisconsin, their findings seemed to indicate that the delinquents used in their studies came largely from the lower economic classes. A large number of the homes showed deleterious elements; numerous homes were broken by disorganization and death; and 67 per cent of the occupations of the parents were below the skilled occupations which was approximately fifteen per cent more than the general population at the time of the study.

John B. Maller made a study of juvenile delinquents in New York City in 1937 in which he found that delinquency was largely concentrated in the underprivileged neighborhoods. The rate of delinquency was found to have a high correlation with economic, social and cultural factors.

All of these studies seemingly indicate that the delinquent population stems largely from the lower classes. Thus, possible class differences existing between scouts and delinquents may suggest differences in personality, and possibly in intelligence and achievement. In order to overcome stratifications already set up by class differences, the subjects used in this study were selected from two classes, namely, the lower-middle and the upper-lower classes. According to Warner's Index

of Status Characteristics ratings, these two classes are very closely related in Negro society, as shown by Allison Davis and his associates.

W. L. Warner's study of social class in America has established three main classes in the longer settled areas of the United States which are as follows: the upper class, the middle class, and the lower class. These have been subdivided into six classes: the upper-upper, the lower-upper, the upper-middle, the lower-middle, the upper-lower, and the lower-lower. Since the subjects of this study were selected from the lower-middle and upper-lower classes these are the only two classes which were described in detail here. These classes were primarily characterized as they appear in the Negro group.

Lower-Middle Class: Members of this group live in medium and small houses in average condition. The houses are generally located in crowded but clean areas. They received their incomes chiefly from salaries; their chief occupations are clerks, semi-skilled workers, pullman porters, dining car waiters, most of the postal employees, and the small less successful business men. This group is characterized by their high participation in community activities and their eternal striving to achieve standards of respectability. The group is strongly church-centered.

2 Allison Davis and John Dollard, Children of Bondage (Washington, 1940), p. 299.
Upper-Lower Class.-- The members of this class receive their incomes from salaries and wages. Their chief occupations are factory workers, working in retail stores, engaged in transporation and building trades. The tailors, bartenders, dressmakers, hairdressers, barbers, well paid servants, and the less successful racketeers are classified with this group. This class has a high participation in the church and the family is usually father dominated.

The scale for determining social class, the Index of Status Characteristics, which was used in this study to determine the class status of the subjects has been set up by W. Lloyd Warner and his associates. It is based on a combination of four variables closely related to economic factors, namely, occupation, source of income, house type, and dwelling area. For the Negro, substitutes are made for house type and dwelling area; the substitutes are religion and education.

To measure a family's social class the family is rated on each of these four characteristics on a seven point scale which ranges from a rating of 1- a very high status value, to 7- a very low status value.

The ratings on the separate status characteristics are combined into a single numerical index by assigning to each one a weight, and securing a weighted total of the separate ratings. The weighted total may be any number from twelve to 84 inclusive. The higher the weighted total score the lower the class status; the lower the weighted total score the

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1 Allison Davis and John Dollard, Children of Bondage (Washington, 1940), pp. 256-262.

2 Carson McGuire, "Social Status, Peer Status, and Social Mobility" (Chicago, 1943), pp. 3-7. (Mimeographed)
higher the class status. Hence, none of the subjects employed in this study will have an I.S.C. total weighted score less than 38 since, according to Warner, this number is the lowest score possible for the upper limit of the lower-middle class.

A general survey of the literature relating to the intelligence, achievement, and personality of delinquents and scouts reveals that very little study has been made in connection with comparing the two groups. However, there has been some extensive study made on delinquent intelligence, achievement, and personality versus nondelinquent intelligence, achievement, and personality. Very few of the studies have held social class as a controlled variable, therefore, implications may not have any bearing upon this study since social class is constant here.

Gordon M. Ridenour made probably the first comparative study of the mental capacities and scholarship records of scouts and nonscouts in the same schools. This study was conducted in three high schools in New York State, and the subjects consisted of three groups of scouts and three groups of non-scouts. The mental scores of the scouts and non-scouts were derived from the National Intelligence Test, Scale A, Form I and the Terman Group Test of Mental Ability; school achievement scores were derived from a careful analysis of the teachers' marks on the report cards for the preceding semester. Out of a total of 154 scouts and 257 non-scouts, the scouts were found to have appreciably higher I.Q.'s than the 257 non-scouts. The scouts of higher rank made better scores than scouts of lower rank, both in intelligence and achievement. The scouts did

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better in school achievement than the non-scouts so far as the teachers' marks were a true index of achievement.

In this study, Ridenour did not include the standard deviations in his computations nor did he derive the standard error of the differences and from these the critical ratios. With the small number of cases used in this study, the real differences might prove to be too small to be statistically significant.

A similar study was conducted by Philo T. Farnsworth in which he attempted to compare the educational achievement and mental ability of all scouts and non-scouts in the elementary and junior high schools of Granite School District, Salt Lake City. Social class was not held constant here, but the sample was so large, in that it included all of the scouts and non-scouts enrolled in the elementary and high schools of the district, that there was a chance that there was not much difference in the social status of the two groups.

The National Intelligence Test and the Terman Group Test of Mental Ability were used to measure the intelligence of these groups. The Stanford Achievement Test was used to measure the achievement of the two groups. The study included 869 boys, of this group 439 were registered Boy Scouts. The data collected revealed that the Boy Scouts possessed a higher median intelligence score that placed them in the brighter normal group with five points higher score in mental ability than the non-scout group. The scores indicated that the scouts, as a group, reached a higher educational achievement than the non-scout group.

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1 Philo T. Farnsworth, Unpublished Study (Salt Lake City, 1932), as cited in Ray O. Wyland, Scouting in Schools (New York, 1934), pp. 88-89.
Farnsworth, in the conclusion of this study, states,

It is evident that the scout group, as reflected in its achievement quotients, is achieving educationally what might be expected in view of their mental ability, while non-scouts are not achieving educationally all that they have mental ability to achieve. Every rank in scouting shows better mental and educational achievement than the non-scout. Whether by a selective or an eliminative process which could not be determined within the scope of this study, it is shown that as scouts increase in achievement and experience in scouting they show also increasing mental ability and greater educational achievement.1

In a comparative study of the records of scouts and non-scouts in nineteen senior high schools, in which social class was held constant, sponsored by the Boy Scouts of America, the scouts showed a consistently higher intelligence than non-scouts. The arithmetic mean intelligence for the scouts was 108.36; for the non-scouts this mean was 104.30. The difference of 4.06 was in favor of the scouts and the standard deviation of this difference yielded a critical ratio of 14.56 indicating that there was, in this case a definite superiority in the intelligence of scouts over non-scouts. These findings, in regard to the superior intelligence of scouts over non-scouts, are supported by the findings of Ridenour and Farnsworth in the studies previously mentioned in this survey of literature.

The achievement of the scouts was found to be consistently better than that of the non-scouts, although the scouts were not achieving in scholarship all that their superior intelligence would lead one to expect. Thus, if the findings derived from this study were compared with the findings derived from studies on the intelligence and achievement of delinquents, they would suggest that scout intelligence and achievement

1 Ray O. Wyland, Scouting in Schools, p. 89.
2 Ibid., pp. 104-118.
are somewhat superior to that of the delinquent even when social class is a controlled variable.

1 N. E. McClure, in his study of 602 juvenile delinquents brought before the court in Toledo, Ohio, found the intelligence level of the delinquents to be lower than that of normal adolescents. He used the Stanford-Binet Intelligence Scale to measure the intelligence of his subjects, and found the mean I. Q. for the group to be 79.34 with a range from 40 to 118.

2 In 1934, the Gluecks made a similar study on the frequency of mental defectives among school children and delinquents in Massachusetts. The delinquent children were found to have considerably lower scores in intelligence than the non-delinquent school children. Of dull and backward children, the frequency among juvenile delinquents was 28.2 per cent and among school children 14 per cent; of borderline defective 17.1 per cent and 5.5 per cent; and of mental defectives, I. Q. of 70 and below, 13.1 per cent and 1.5 per cent.

3 These two studies, by N. E. McClure and the Gluecks, do not compare delinquent intelligence with scout intelligence and seemingly may not have too much bearing on the question discussed here. However, they simply substantiate the belief that delinquent intelligence is considered to be

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2 Sheldon Gleuck and Eleanor Gleuck, One Thousand Juvenile Delinquents (Cambridge, Massachusetts, 1934), p. 102.
lower than normal in most instances.

1 Henry Feinberg, in 1947, studied the achievement of a group of 872 institutionalized delinquent boys by administering the Stanford Achievement Test. The mean age of this group was 14.3 years, the range being from ten to seventeen years inclusive. The group included all races, most of the subjects being from families of lower than average cultural patterns. The scores derived from the test revealed that, on the average, these boys were from one year three months to two years four months retarded when compared with the grade in which the boy found himself. Compared with the actual grade placement on the test, the boys were retarded on the average from one and one half years to two years in their actual achievement. The highest achievement was in subjects where multiple choice was involved, and lowest in which there was possible only one correct answer and careful and more exactitude in thinking, such as spelling, language usage, and arithmetic computation.

This study concluded that this group of delinquent boys was below average in their achievement.

2 C. R. Armstrong and F. Heisler reached the same conclusion in their study of the achievement of 200 white delinquent boys between the ages of 14-15 and 200 Negro delinquent boys within the same age range. The Stanford-Binet Test of Intelligence, the Woody McCall Mixed Fundamentals Test, and the Stenquist Test of Mechanical Ability, Series I were administered


to the group.

The 200 white delinquents were found to be well below average in intelligence with a mental age of $12\frac{1}{2}$ years, and a mean I.Q. of 83. They were more backward in arithmetic than their intelligence level would justify, and 147 were 5th grade in reading. Similarly, the 200 Negro delinquents of the same age group were seriously retarded in intelligence with a mean mental age of eleven years ten months, and a mean I.Q. of 79. They averaged high 4th grade in arithmetic, and in reading 115 were likewise 4th grade.

The achievement level of the entire group studied was considered low indicating that delinquents' level of achievement is not up to their grade placement.

Those who have studied delinquents regard them as emotionally unstable individuals. They are not reconciled to society as it is constituted. They like the wrong people and want to do the wrong things. They are bored with the ordinary ways of living, and they want excitement and change. They have unusual reactions to the stresses of everyday life. They resent discipline, and discipline leaves little effect upon them. They will not submit to normal social restrictions but set about making their own rules. All observations and tests show that delinquents differ from normal children mainly in their emotional reactions.¹

In a study by H. D. Williams, on the emotional adjustment of predelinquent school children in ten midwestern cities, it was found that, of the 1,343 delinquents, 97 per cent showed emotional maladjustment; 83 per cent were unable to adjust to school, and 77 per cent were

maladjusted in their homes. In another group of 143 delinquents, 131 of them had major emotional disturbances in their home relationships. Thus, 53 of them felt rejected and unloved; 45 had deep feelings of frustration; 62 felt inferior and inadequate; 43 were disturbed over family disharmonies; 43 were markedly jealous of their brothers and sisters; 20 had deep seated conflicts of other types entering the home. In studies made by A. Courthial, A. T. Jameson, and G. S. Speer, the investigators all found that, while normal children tend to blame themselves for their own shortcomings and to criticize delinquents for being antisocial, the delinquent tends to admire antisocial behavior in others and opposed any conventionality in himself. He is retarded in his emotional development; hence, he is quite maladjusted.

In an attempt to discover what factors in a boys' make-up and in his environment might have a specific bearing upon his antisocial behavior, a comprehensive testing program was conducted in Indiana by Edward R. Bartlett and Dale B. Harris over the period from November 1934 to May 1935. The subjects used consisted of 119 boys in a boys' training school and 122 boys enrolled in a boys' high school. All boys were

1 A Courthial, "Emotional Differences Between Delinquent and Non-Delinquent Girls of Normal Intelligence," Archives of Psychology, No. 133 (December, 1940), 100.
4 Edward R. Bartlett and Dale B. Harris, "Personality Factors in Delinquency," School and Society, XLIII (May, 1936), 653-666.
selected from grades 8, 9, 10. The average age of the delinquent boys was \(16 \frac{7}{12}\) years; for the normal group \(15 \frac{2}{12}\). The average I.Q.'s were 94.32 and 99.24 respectively. The social status or background of the two groups were found to be comparable, the socio-economic status ranging from medium to medium high.

Both groups of boys were tested for their personal adjustment, both physical and social, for characteristic interests, for social, moral, and religious knowledge and attitudes, for honest behavior under conditions admitting of class-room cheating.

The following tests were employed: (1) Intelligence—Stanford Binet Test of Intelligence; (2) Socio-Economic status—Sims Socio-Economic Score Card; (3) (a) Personal Adjustment—Bell Adjustment Inventory; (b) Woodworth Mathews Personal Data Sheet (c) Hawthorne "My Choice" test, to reveal specifically cruelty-compassion tendencies; (4) Interests—(a) Play Questionnaire (Harris), (b) Interest Analysis, Association Press Character and Personality Tests; (5) Moral Knowledge—(a) "Best things to do" Northwestern University Citizenship Tests, (b) "My Code" Northwestern University Citizenship Tests; (6) Religious Knowledge and Attitude—Biblical Knowledge Test (Bartlett); (7) Social Attitude—Bogardus Social Distance Test; (8) Honest Behavior—Arithmetic Test (G. E. Hill).\(^1\)

Deception revealed by means of double testing technique. An analysis of the scores made by the two groups of boys showed the delinquents to be much more maladjusted in their relations with other members of the family than were the non-delinquents. While the range of scores in both groups was from 0-27, the high score indicating extreme maladjustment, the average for the delinquent boys was almost twice that of the non-delinquent group. No significant differences were found to exist between the two groups in

\[^1\] Edward R. Bartlett and Dale B. Harris, "Personality Factors in Delinquency," School and Society, XLIII, 655.
either health or general social development. Marked differences appeared in the degree of emotional adjustment; scores obtained indicated a greater amount of emotional instability existing in the delinquent group. Delinquents seem to have more difficulty in maintaining home and family relationships; there is more frequent participation in socially undesirable leisure time activities.

There is a greater tendency for cruelty among delinquent boys than in the unselected juvenile population. In spite of these differences mentioned no consistent behavior patterns were found to characterize either the delinquent or the non-delinquent.¹

Henry P. Fairchild set out to investigate, by the case study method, the effect of scouting experience upon the conduct habits of boys. The inquiry sought to answer two questions: (1) Do scouts display a higher level of conduct than boys of similar ages who are not scouts? (2) If there is a difference, can scouting be held accountable for the difference? The study is devoted to the case studies of scouts and non-scouts found on the records of the juvenile courts and similar case studies of scouts and non-scouts in their community relationship and having no court records. It was found that one out of every 240 non-scouts was a delinquent and one out of every 978 scouts was thus delinquent. From this, it is evident that scouts are not as liable to delinquency as other boys. Further comparative studies of the 917 scouts and non-scouts, to determine what differences, if any, there were in the character development

¹ Edward R. Bartlett and Dale B. Harris, "Personality Factors in Delinquency," School and Society, XLIII, 636.
of scouts and non-scouts, indicated that, in general, the scouts were
found to have or show a higher level of social conduct than that exhibited
by non-scouts. The investigators found no significant differences in the
amount of cheating and deception as between scouts and non-scouts; but
the records are not consistent; scouts appeared superior in some groups,
but average inferior in other groups. Tests of a very limited number of
scouts and non-scouts show the scouts to be slightly more cooperative and
to have slightly stronger service tendencies than non-scouts.

Fairchild concludes that,

There is no conclusive proof that the superior character of
scouts, in whatever degree it has been exhibited, is more or less
the direct result of scouting or scout training. Such hereditary
and environmental factors as superior intelligence and a generally
more favorable social background, including scout training, are
jointly accountable for the superior conduct habit of these boys.¹

A survey of the literature seems to imply that, in instances where
scouts are compared with non-scouts on intelligence, achievement, and
personality, the scouts, in most instances, surpass the non-scout group.
In the few studies in which social class was held constant this fact
still held true; scouts scored higher in intelligence, achievement, and
tended to be more emotionally mature than the non-scouts.

The studies sponsored by the Boy Scouts of America tend to imply
that scouting has had some effect upon the boy's personality. Inasmuch
as one of the main purposes of scouting is character development and
every step in the scout program is but a means to this end, it is to be
expected that the scouts would show more wholesome character development
than a group of delinquents who have never been exposed to the scouting

¹ Ray O. Wyland, Scouting in the Schools, p. 103.
The literature reviewed, concerning the mental and personality traits of delinquents, implies that delinquents, in most instances, are below normal in their intelligence and are not achieving educationally all that they have the mental ability to achieve. They also tend to be more emotionally unstable than the average child. It is maintained throughout the literature that social class is a contributing factor to this low intelligence, achievement, and personality difficulties, but even in cases where class was held constant delinquents tended to score lower on the variables tested than the group with which they were compared. This tends to indicate, according to the literature reviewed here, that ignoring the class factor, delinquents, for the most part, are still inferior to non-delinquents in intelligence, achievement, and personality.
CHAPTER II

THE PROCEDURE

Description and Selection of Subjects.— Ninety-five Negro adolescents, all of them residents of Atlanta, Georgia, comprised the subjects for this study. These subjects were divided into four distinct groups; three groups consisting of twenty-five children each and the last group consisting of twenty. The groups were as follows: Group 1, twenty-five Boy Scouts; Group 2, twenty-five delinquent boys; Group 3, twenty-five Girl Scouts; Group 4, twenty delinquent girls. All of the subjects were between the ages of eleven and fifteen. They were all members of either the lower-middle or upper-lower classes. These children came from grades 4 through 9 and from seven different schools of the city.

The subjects were selected on the basis of the following criteria: (1) sex; (2) group affiliation, i.e. membership in either the scout or delinquent group; (3) age; (4) social class.

The writer made personal contacts with the local Boy and Girl Scout organization. From the lists of the registered scouts for the year 1950-1951 seventy scouts, forty Boy Scouts and thirty Girl Scouts between the ages of eleven and fifteen, and who had a minimum of six months scouting experience, were selected.

The writer was permitted to use only those delinquents who were not institutionalized at the time of the study. Sixty delinquents, thirty boys and thirty girls, who had at one time spent a minimum of one month in a reform institution, and were between the ages of eleven and fifteen were selected. At the time of the study all of the delinquents used were
still under juvenile court supervision and had been dismissed from the reform school for a probationary period.

The Index of Status Characteristics, designed by W. Lloyd Warner, was used to eliminate those scouts and delinquents whose total weighted scores on this socio-economic scale indicated that they were members of social classes other than the lower-middle and the upper-lower. Four status characteristics were used, namely, (1) Occupation, (2) Religion, (3) Source of Income, (4) Education. An individual’s total weighted score was arrived at after the score obtained by an individual on each of these characteristics was weighted and the sum of the weighted scores found. The I.S.C. total weighted scores were used to predict the social class of the individual. Only those children having a total weighted score ranging from 38 to 66 were used as subjects since these scores are the limits for the lower-middle and upper-lower classes. The social class distribution of the subjects is found in Table I.

**TABLE I**

SOCIAL CLASS DISTRIBUTION OF THE TWENTY-FIVE GIRL SCOUTS, TWENTY DELINQUENT GIRLS, TWENTY-FIVE BOY SCOUTS, AND TWENTY-FIVE DELINQUENT BOYS USED IN THIS STUDY.

<table>
<thead>
<tr>
<th>Status</th>
<th>Girls</th>
<th></th>
<th>Boys</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scouts</td>
<td>Delinquents</td>
<td>Scouts</td>
<td>Delinquents</td>
<td></td>
</tr>
<tr>
<td>Upper Lower</td>
<td>12</td>
<td>9</td>
<td>9</td>
<td>14</td>
<td>44</td>
</tr>
<tr>
<td>Lower Middle</td>
<td>13</td>
<td>11</td>
<td>16</td>
<td>11</td>
<td>51</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>25</td>
<td>20</td>
<td>25</td>
<td>25</td>
<td>95</td>
</tr>
</tbody>
</table>

As a result of this social class typing, ninety-five subjects conformed to all of the selective criteria. Hence, the selection of the ninety-
five subjects used in the study was completed, and they were divided into the four groups previously mentioned in the beginning of this chapter. These groups were: Group 1, twenty-five Boy Scouts; Group 2, twenty-five delinquent boys; Group 3, twenty-five Girl Scouts; Group 4, twenty delinquent girls.

The Testing Program. — The Otis Self-Administering Test of Mental Ability, Intermediate Form B, designed for Grades 4 through 9 by Arthur S. Otis was used to compare the intelligence of the groups.

This intelligence test was administered to all of the subjects and the raw scores were used to determine the desired statistics, i.e., the means of the four groups, the standard deviation of the means, and the significance of the mean differences.

The Metropolitan Achievement Test, Intermediate Battery Complete: Form R was used to determine the achievement level of ten subjects from each of the four groups. This battery contains ten subtests: Reading, Vocabulary, Arithmetic Fundamentals, Arithmetic Problems, English, Literature, Social Studies, Geography, Science, Spelling. The test in spelling is optional and was not administered in this instance.

The ninety-five subjects used in this study came from grades 4 through 9 and from seven different schools. The members of the groups were not equally distributed through these grades, and they had such varied school backgrounds that the writer felt that in comparing these two groups on achievement too many outside variables would have to be taken into consideration. Therefore, ten subjects from each of the four groups who were in the seventh grade were tested on these subjects in achievement. The mean for each group on each of these variables was computed, the
standard deviation of each mean found, and the significance of the mean
differences determined by the use of Fisher's t test of significance.

Pintner's Aspects of Personality was administered to all of the sub-
jects to determine the outstanding differences existing between the
personality of the scouts and delinquents.

This test is divided into three main sections. Section I contains
thirty-five items and provides a measure of ascendancy-submission.
Section II contains thirty-five items and affords a measure of introversion-
extroversion. Section III, which measures emotionality, also contains
thirty-five items plus nine items which are not significant and are not
scored but merely scattered throughout this section of the test in order
to break up the emotional character of the test.

In administering the Aspects of Personality Inventory, the writer
realized that she was attempting to compare the personalities of children
in entirely different age groups. In instances where adolescents are com-
pared with preadolescents, and early adolescents, definite personality
differences are to be expected because of the variety of experiences charac-
teristic of the various age groups. The writer compared the two groups
of scouts with the two groups of delinquents on age in order to determine
whether or not there were any significant differences in the mean ages
of the two groups. The mean age for each group was computed and Fisher's
t test of significance used to determine the significance of the mean
difference. The data on the age distribution of the four groups is found
in Table II and Table III.

The mean age for the Girl Scouts was 12.52 while the mean age for the
delinquent girls was 12.42. With 43 degrees of freedom t must be at least
2.016 in order to be significant at the 5 per cent level of confidence,
TABLE II

AGE DISTRIBUTION OF THE TWENTY-FIVE BOY SCOUTS, TWENTY-FIVE DELINQUENT BOYS, TWENTY-FIVE GIRL SCOUTS, AND TWENTY DELINQUENT GIRLS USED IN THIS STUDY

<table>
<thead>
<tr>
<th>Age</th>
<th>Number of Boys</th>
<th>Number of Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scouts</td>
<td>Delinquents</td>
</tr>
<tr>
<td>15.0 - 15.12</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>14.0 - 14.12</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>13.0 - 13.12</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>12.0 - 12.12</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>11.0 - 11.12</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10.0 - 10.12</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

and at least 2.693 in order to be significant at the 1 per cent level of confidence. Therefore, a t of .33 with 43 degrees of freedom indicated that the mean difference of .10 between the two groups of girls is not significant at either the 5 per cent or 1 per cent level of confidence.

The mean age for the Boy Scouts was 13.22, while the mean age for the delinquent boys was 13.31. With 48 degrees of freedom, t must be at least 2.010 in order to be significant at the 5 per cent level of confidence and at least 2.681 in order to be significant at the 1 per cent level of confidence. A t of .281 with 48 degrees of freedom indicated that the mean difference of .09 is not significant at either the 5 per cent or 1 per cent level of confidence. Since the mean age difference in
TABLE III

STATISTICAL DATA ON THE AGE DISTRIBUTION OF THE NINETY-FIVE SUBJECTS USED IN THIS STUDY

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Age</th>
<th>Standard Deviation</th>
<th>Mean Difference</th>
<th>t</th>
<th>Significance of t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boy Scouts</td>
<td>13.22</td>
<td>1.02</td>
<td>.09</td>
<td>.28</td>
<td>Not significant at* the 5 per cent level of confidence.</td>
</tr>
<tr>
<td>Delinquent Boys</td>
<td>13.31</td>
<td>1.13</td>
<td>.09</td>
<td>.28</td>
<td>Not significant at the 5 per cent level of confidence.</td>
</tr>
<tr>
<td>Girl Scouts</td>
<td>12.52</td>
<td>.923</td>
<td>.10</td>
<td>.33</td>
<td>Not significant at** the 5 per cent level of confidence.</td>
</tr>
<tr>
<td>Delinquent Girls</td>
<td>12.42</td>
<td>.962</td>
<td>.10</td>
<td>.33</td>
<td>Not significant at the 5 per cent level of confidence.</td>
</tr>
</tbody>
</table>

*With 48 degrees of freedom t must be at least 2.010 in order to be significant at the 5 per cent level of confidence and at least 2.681 in order to be significant at the 1 per cent level of confidence.

**With 43 degrees of freedom t must be at least 2.016 in order to be significant at the 5 per cent level of confidence and at least 2.693 in order to be significant at the 1 per cent level of confidence.
both comparisons were found to be insignificant at either of the levels of confidence used in this study. The writer felt safe in comparing the groups on personality without matching them on age.

The raw scores on each section of the personality inventory were found and in turn used to determine the means of the four groups, the standard deviation of the means, and the significance of the mean differences.

The data and interpretations drawn from the data gathered by the administration of these three tests are presented in the following chapter.
CHAPTER III

PRESENTATION AND INTERPRETATION OF DATA

Presentation of Data.—The small samples used in this study of 25, 25, 25, and 20, fall in the small sample group and were treated accordingly as ungroup data.

The distinction between large samples and small sample statistics is not an absolute one, by any means, the other realm merging into and overlapping so extensively the other. If one asks "How small is N before we have a small sample?" The answer from different sources will vary. There is general agreement that the division, if there must be one, is in the range of 25 to 30. Some place it as low as 20 and others say that anything under 100 is a small sample.¹

The special formulae for treating ungrouped data found in Guilford, were used here to determine the arithmetic mean, the standard deviation of each mean for every distribution of scores in each comparison; Fisher's t test of significance was used to determine the significance of the mean difference in each comparison.

The following formulae were used to find t

\[ t = \frac{m_1 - m_2}{\sqrt{\frac{(n_1 + n_2 - 2)(s_1^2 + s_2^2)}{n_1 + n_2 - 2}}} \]

These formulae, for treating ungrouped data, were used to determine the mean intelligence of each group, the standard deviation of each mean, and

² Ibid., pp. 59, 105, 228.
³ Ibid., p. 59.
⁴ Ibid., p. 105.
⁵ Ibid., p. 228.
Fisher's t used to determine the significance of the mean differences in intelligence, if any, between the two groups of boys, and the significance of the mean differences, if any, existing between the two groups of girls.

These same formulae were used to compute the mean, the standard deviation of each mean, and to determine the significance of the mean differences, if any, for the data collected from the administration of the Metropolitan Achievement Test and the Aspects of Personality Inventory.

Since the samples used in this study were so small their scores probably did not form a normal distribution or the normal curve. Therefore, in this study, the mean standard deviations could not be interpreted in terms of the percentage of cases included within the range from one standard deviation below the mean to one standard deviation above the mean. Here, we could only use the standard deviation as a means of determining the homogeneity or heterogeneity of the sample. If the scores are widely scattered and the range is wide, it is said that the sample is heterogeneous. If the situation is just the opposite, the sample is said to be homogeneous in that the scores are not scattered over a wide range.

As previously mentioned, Fisher's t test of significance was used here to determine the significance of the differences between the two means. However, before determining the significance of t it was necessary to first compute the number of degrees of freedom in each comparison.

Having found the number of degrees of freedom the writer then referred to the table of t ratios in Fundamental Statistics in Psychology and Education,

---

2 Ibid., pp. 184-185
3 Ibid., pp. 609-610.
to determine the level of confidence at which t was significant.

In comparing the groups of boys on intelligence and personality, since there were fifty subjects, there were 48 degrees of freedom. With 48 degrees of freedom, according to Guilford, t must be at least 2.010 in order to be significant at the 5 per cent level of confidence and at least 2.681 in order to be significant at the 1 per cent level of confidence.

When comparisons were made between the two groups of boys on the nine areas of achievement there were only 18 degrees of freedom since the total number of subjects used in this comparison was 20. With only 18 degrees of freedom t must be at least 2.101 in order to be significant at the 5 per cent level of confidence and at least 2.878 in order to be significant at the 1 per cent level of confidence. This same thing is true in comparing the two groups of girls. The same number of subjects were used, therefore the degrees of freedom were the same and the significant values of t at the 5 and 1 per cent levels of confidence are the same.

In comparing the Girl Scouts and delinquent girls on intelligence and personality there were 43 degrees of freedom since there were 45 subjects; 25 Girl Scouts and 20 delinquent girls. With 43 degrees of freedom t must be at least 2.016 in order to be significant at the 5 per cent level of confidence and at least 2.693 in order to be significant at the 1 per cent level of confidence.

Thus, the significance of the mean differences was determined by the value of Fisher's t at either the 1 per cent or 5 per cent level of confidence in all instances.

Intelligence of the Scouts and Delinquents.—The data derived from the administration of the Otis Self-Administering Test of Mental Ability
on the intelligence of the subjects is found in Tables IV and V. According to these results the scouts as a group showed a higher mean intelligence than the delinquents.

The mean score for the Boy Scouts was 28.64 while the delinquent boys had a mean score of 17.92. There was a difference of 10.72 in the mean intelligence scores of the two groups of boys. This difference was in favor of the Boy Scouts.

Fisher's $t$ test of significance was used to determine the significance of the mean difference, and it was found that $t$, in this case, with 48 degrees of freedom, was 5.92 and was significant at the 1 per cent level of confidence. Thus, the difference of 10.72, between the two groups of boys, was significant at the 1 per cent level of confidence and there is only one chance in one hundred that this difference was due to chance factors.

The standard deviation of the mean intelligence score for the Boy Scouts was 11.86; the mean intelligence score for the delinquent boys was 9.25. In both cases the large standard deviations indicated that both groups were heterogeneous, i.e., the scores were widely dispersed.

The Girl Scouts were found to have a mean intelligence score of 23.52 while the delinquent girls had a mean score of 15.48. The mean difference of 8.04 was found to be significant at the 5 per cent level of confidence with 43 degrees of freedom.

In order to be significant, with 43 degrees of freedom, $t$ must be at least 2.016 at the 5 per cent level of confidence and at least 2.693 at the 1 per cent level of confidence. Therefore, a Fisher's $t$ of 2.41 indicated that the mean difference is significant at the 5 per cent level.
TABLE IV

FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TWENTY-FIVE BOY SCOUTS, TWENTY-FIVE DELINQUENT BOYS; TWENTY-FIVE GIRLS SCOUTS, AND TWENTY DELINQUENT GIRLS ON THE OTIS SELF-ADMINISTERING TEST OF MENTAL ABILITY

<table>
<thead>
<tr>
<th>Score</th>
<th>Number of Boys</th>
<th></th>
<th>Score</th>
<th>Number of Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scouts Delinquents</td>
<td></td>
<td></td>
<td>Scouts Delinquents</td>
</tr>
<tr>
<td>55-59</td>
<td>1 0</td>
<td></td>
<td>55-59</td>
<td>0 0</td>
</tr>
<tr>
<td>50-54</td>
<td>0 0</td>
<td></td>
<td>50-54</td>
<td>0 0</td>
</tr>
<tr>
<td>45-49</td>
<td>2 0</td>
<td></td>
<td>45-49</td>
<td>2 0</td>
</tr>
<tr>
<td>40-44</td>
<td>2 0</td>
<td></td>
<td>40-44</td>
<td>1 1</td>
</tr>
<tr>
<td>35-39</td>
<td>2 0</td>
<td></td>
<td>35-39</td>
<td>1 2</td>
</tr>
<tr>
<td>30-34</td>
<td>4 3</td>
<td></td>
<td>30-34</td>
<td>1 0</td>
</tr>
<tr>
<td>25-29</td>
<td>5 6</td>
<td></td>
<td>25-29</td>
<td>7 2</td>
</tr>
<tr>
<td>20-24</td>
<td>3 1</td>
<td></td>
<td>20-24</td>
<td>3 5</td>
</tr>
<tr>
<td>15-19</td>
<td>3 6</td>
<td></td>
<td>15-19</td>
<td>3 2</td>
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<td>10-14</td>
<td>3 2</td>
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<td>10-14</td>
<td>5 5</td>
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<td>5-9</td>
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<td>2 3</td>
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<td>0-4</td>
<td>0 2</td>
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<td>0 0</td>
</tr>
<tr>
<td>Total</td>
<td>25 25</td>
<td></td>
<td>Total</td>
<td>25 25</td>
</tr>
</tbody>
</table>
TABLE V

STATISTICAL DATA DERIVED FROM THE SCORES OBTAINED BY TWENTY-FIVE BOY SCOUTS, TWENTY-FIVE DELINQUENT BOYS, TWENTY-FIVE GIRL SCOUTS AND TWENTY DELINQUENT GIRLS ON THE OTIS SELF-ADMINISTERING TEST OF MENTAL ABILITY

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Intelligence Score</th>
<th>Standard Deviation</th>
<th>Mean Difference</th>
<th>t</th>
<th>Significance of t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boy Scouts</td>
<td>28.64</td>
<td>11.86</td>
<td>10.72</td>
<td>5.96</td>
<td>Significant at the 1 per cent level of confidence.</td>
</tr>
<tr>
<td>Delinquent Boys</td>
<td>17.29</td>
<td>9.25</td>
<td>10.72</td>
<td>5.96</td>
<td>Significant at the* 1 per cent level of confidence.</td>
</tr>
<tr>
<td>Girl Scouts</td>
<td>23.52</td>
<td>11.11</td>
<td>8.04</td>
<td>2.41</td>
<td>Significant at the** 5 per cent level of confidence.</td>
</tr>
<tr>
<td>Delinquent Girls</td>
<td>15.48</td>
<td>9.35</td>
<td>8.04</td>
<td>2.41</td>
<td>Significant at the 5 per cent level of confidence.</td>
</tr>
</tbody>
</table>

*With 48 degrees of freedom t must be at least 2.010 in order to be significant at the 5 per cent level of confidence and at least 2.681 in order to be significant at the 1 per cent level of confidence.

**With 43 degrees of freedom t must be at least 2.016 in order to be significant at the 5 per cent level of confidence and at least 2.693 in order to be significant at the 1 per cent level of confidence.
but not at the 1 per cent and there are only 5 chances in 100 that this difference will occur by chance. Again the mean difference was in favor of the scout group.

The large standard deviation, Girl Scouts 11.11, and delinquent girls 9.35, indicates that both groups were heterogeneous and the scores were not distributed so as to form a normal curve.

In both instances where scouts were compared with delinquents on intelligence, the mean differences were found to be significant and in favor of the scout groups. The significance of $t$ at the 5 per cent level of confidence in both comparisons must indicate some superiority in the intelligence of scouts as compared with that of delinquents.

**Achievement of the Subjects.**—When the Boy Scouts were compared with the delinquent boys on the nine variables of achievement found in the Metropolitan Achievement Test, the Boy Scouts, as a group, scored significantly higher than the delinquent boys. The statistical data derived from the test results of these two groups is found in Table VI.

In reading comprehension the Boy Scouts had a mean score of 48.1 and a standard deviation of 5.05; the delinquent boys had a mean score of 37.1 and a standard deviation of 7.48. The distribution of the scores obtained by both groups of boys on this test is found in Table VII.

The larger standard deviation of the delinquent group indicated that the scores obtained by this group on the test of reading comprehension were more heterogeneous than those scores obtained by the scouts. A $t$ of 4.10 with 18 degrees of freedom was found to be significant at the 1 per cent level of confidence indicating that the mean difference of 11.0, in favor of the Boy Scouts, was significant. The null hypothesis was rejected
<table>
<thead>
<tr>
<th>Subtests</th>
<th>Groups</th>
<th>Mean</th>
<th>Mean Difference</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading</strong></td>
<td>Scouts</td>
<td>43.1</td>
<td>5.05</td>
<td>11.0</td>
</tr>
<tr>
<td></td>
<td>Delinquents</td>
<td>37.1</td>
<td>7.48</td>
<td></td>
</tr>
<tr>
<td><strong>Vocabulary</strong></td>
<td>Scouts</td>
<td>54.9</td>
<td>2.95</td>
<td>13.9</td>
</tr>
<tr>
<td></td>
<td>Delinquents</td>
<td>41.0</td>
<td>11.56</td>
<td></td>
</tr>
<tr>
<td><strong>Arithmetic</strong></td>
<td>Scouts</td>
<td>48.9</td>
<td>6.42</td>
<td>6.8</td>
</tr>
<tr>
<td>Fundamentals</td>
<td>Delinquents</td>
<td>42.1</td>
<td>8.78</td>
<td></td>
</tr>
<tr>
<td><strong>Arithmetic</strong></td>
<td>Scouts</td>
<td>48.0</td>
<td>5.97</td>
<td>8.3</td>
</tr>
<tr>
<td>Problems</td>
<td>Delinquents</td>
<td>39.7</td>
<td>6.74</td>
<td></td>
</tr>
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<td>Scouts</td>
<td>50.9</td>
<td>1.57</td>
<td>12.1</td>
</tr>
<tr>
<td></td>
<td>Delinquents</td>
<td>38.8</td>
<td>8.68</td>
<td></td>
</tr>
<tr>
<td><strong>Literature</strong></td>
<td>Scouts</td>
<td>40.5</td>
<td>1.58</td>
<td>4.3</td>
</tr>
<tr>
<td></td>
<td>Delinquents</td>
<td>36.2</td>
<td>1.40</td>
<td></td>
</tr>
<tr>
<td><strong>History</strong></td>
<td>Scouts</td>
<td>45.1</td>
<td>4.85</td>
<td>7.7</td>
</tr>
<tr>
<td></td>
<td>Delinquents</td>
<td>37.4</td>
<td>6.64</td>
<td></td>
</tr>
<tr>
<td><strong>Geography</strong></td>
<td>Scouts</td>
<td>43.9</td>
<td>6.52</td>
<td>7.3</td>
</tr>
<tr>
<td></td>
<td>Delinquents</td>
<td>36.6</td>
<td>7.16</td>
<td></td>
</tr>
<tr>
<td><strong>Science</strong></td>
<td>Scouts</td>
<td>44.8</td>
<td>4.07</td>
<td>7.7</td>
</tr>
<tr>
<td></td>
<td>Delinquents</td>
<td>37.1</td>
<td>2.45</td>
<td></td>
</tr>
</tbody>
</table>

*"*" is significant at the 1 per cent level of confidence.

**"** is significant at the 5 per cent level of confidence.
at the 1 per cent level of confidence.

The distribution of the scores obtained by both groups of boys in vocabulary are found in Table VIII.

**TABLE VII**

FREQUENCY DISTRIBUTION OF THE RAW SCORES OBTAINED BY TEN BOY SCOUTS AND TEN DELINQUENT BOYS ON THE METROPOLITAN ACHIEVEMENT TEST IN READING

<table>
<thead>
<tr>
<th>Scores</th>
<th>Number of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boy Scouts</td>
</tr>
<tr>
<td>51 - 53</td>
<td>3</td>
</tr>
<tr>
<td>48 - 50</td>
<td>3</td>
</tr>
<tr>
<td>45 - 47</td>
<td>2</td>
</tr>
<tr>
<td>42 - 44</td>
<td>2</td>
</tr>
<tr>
<td>39 - 41</td>
<td>0</td>
</tr>
<tr>
<td>36 - 38</td>
<td>1</td>
</tr>
<tr>
<td>33 - 35</td>
<td>0</td>
</tr>
<tr>
<td>30 - 32</td>
<td>1</td>
</tr>
<tr>
<td>27 - 29</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

In vocabulary the group of Boy Scouts had a mean score of 54.9 and a standard deviation of 2.95; the delinquent boys had a mean score of 41 and a standard deviation of 11.6. The scores of the delinquent boys were more widely scattered than those of the scouts; the small standard deviation of the scouts indicated that the group was very homogeneous. A $t$ of 3.49 with 18 degrees of freedom was found to be significant at the 1 per cent level of confidence. The mean difference of 13.9, in favor of the Boy Scouts, was significant, and the null hypothesis was rejected at the 1 per cent level of confidence.

In arithmetic fundamentals the Boy Scouts scored higher with
TABLE VIII

FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY
TEN BOY SCOUTS AND TEN DELINQUENT BOYS ON
THE METROPOLITAN ACHIEVEMENT TEST IN
VOCABULARY

<table>
<thead>
<tr>
<th>Scores</th>
<th>Number of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boy Scouts</td>
</tr>
<tr>
<td>60 - 64</td>
<td>1</td>
</tr>
<tr>
<td>55 - 59</td>
<td>4</td>
</tr>
<tr>
<td>50 - 54</td>
<td>5</td>
</tr>
<tr>
<td>45 - 49</td>
<td>0</td>
</tr>
<tr>
<td>40 - 44</td>
<td>0</td>
</tr>
<tr>
<td>35 - 39</td>
<td>0</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
</tr>
</tbody>
</table>

a mean score of 48.9. The delinquent boys had a mean score of 42.1.
The standard deviation of the mean of the Boy Scouts was 6.42; the de-
linquent boys had a standard deviation of 8.78. The large standard
deviation showed that although both groups were heterogeneous, the de-
linquent group was more heterogeneous than the group of Boy Scouts, as
shown by the distribution of scores in Table IX. A t score of 4.93 indi-
cated that the mean difference of 6.8 was significant. The null hypo-
thesis was rejected at the 1 percent level of confidence.

The Boy Scouts scored higher than the delinquent boys in arithmetic
problems with a mean score of 48; the delinquent boys had a mean score
of 39.7. The distribution of the scores obtained by both groups of boys
on this test are found in Table IX. The standard deviation for the Boy
TABLE IX

FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TEN BOY SCOUTS AND TEN DELINQUENT BOYS ON THE METROPOLITAN ACHIEVEMENT TEST IN ARITHMETIC FUNDAMENTALS AND PROBLEMS

<table>
<thead>
<tr>
<th>Scores</th>
<th>ARITHMETIC FUNDAMENTALS</th>
<th>Number of Scores</th>
<th>ARITHMETIC PROBLEMS</th>
<th>Number of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boy Scouts</td>
<td>Delinquent Boys</td>
<td>Boy Scouts</td>
<td>Delinquent Boys</td>
</tr>
<tr>
<td>55 - 59</td>
<td>1</td>
<td>0</td>
<td>55 - 59</td>
<td>0</td>
</tr>
<tr>
<td>50 - 54</td>
<td>5</td>
<td>4</td>
<td>50 - 54</td>
<td>5</td>
</tr>
<tr>
<td>45 - 49</td>
<td>0</td>
<td>2</td>
<td>45 - 49</td>
<td>1</td>
</tr>
<tr>
<td>40 - 44</td>
<td>4</td>
<td>0</td>
<td>40 - 44</td>
<td>4</td>
</tr>
<tr>
<td>35 - 39</td>
<td>0</td>
<td>0</td>
<td>35 - 39</td>
<td>0</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0</td>
<td>1</td>
<td>30 - 34</td>
<td>0</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0</td>
<td>3</td>
<td>25 - 29</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>10</td>
<td>Total</td>
<td>10</td>
</tr>
</tbody>
</table>


scouts was 5.97, while the delinquents had a standard deviation of 6.74. A t of 2.77 with 18 degrees of freedom was found to be significant at the 5 per cent level of confidence. Hence, there are only 5 chances in 100 that this difference was due to chance factors.

The mean score for the Boy Scouts in English was 50.9 and the standard deviation 1.57. The delinquent boys had a mean score of 38.8 and a standard deviation of 8.68. Again the large standard deviation in the case of the delinquents indicated that the group was very heterogeneous, and that the scores were widely dispersed. The scores for both groups are presented in Table X. A t of 4.10 with 18 degrees of freedom was found to be significant at the 1 per cent level of confidence. Thus, the mean difference of 12.1 was significant and there is only 1 chance in 100 that it was due to chance factors.

<table>
<thead>
<tr>
<th>Scores</th>
<th>Number of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boy Scouts</td>
</tr>
<tr>
<td>50 - 54</td>
<td>7</td>
</tr>
<tr>
<td>45 - 49</td>
<td>3</td>
</tr>
<tr>
<td>40 - 44</td>
<td>0</td>
</tr>
<tr>
<td>35 - 39</td>
<td>0</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
</tr>
</tbody>
</table>

In literature the scouts again scored higher than the delinquent
boys with a mean score of 40.5 and a standard deviation of 1.58. The delinquent boys had a mean score of 36.2 and a standard deviation of .4. A t score of 1.47 with 18 degrees of freedom was not significant at either the 1 per cent or 5 per cent level of confidence. Hence, the mean difference of 4.3 was not significant. The null hypothesis was accepted at the 1 per cent level of confidence. Table XI shows the distribution of the scores for the two groups of boys in literature.

TABLE XI

FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TEN BOY SCOUTS AND TEN DELINQUENT BOYS ON THE METROPOLITAN ACHIEVEMENT TEST IN LITERATURE

<table>
<thead>
<tr>
<th>Scores</th>
<th>Number of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boy Scouts</td>
</tr>
<tr>
<td>45 - 49</td>
<td>3</td>
</tr>
<tr>
<td>40 - 44</td>
<td>2</td>
</tr>
<tr>
<td>35 - 39</td>
<td>3</td>
</tr>
<tr>
<td>30 - 34</td>
<td>2</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
</tr>
</tbody>
</table>

The mean score for the Boy Scouts in geography was 43.9 and the standard deviation of the mean was 6.52. The delinquent boys had a mean score of 36.6 and a mean standard deviation of 7.16. Both distributions were heterogeneous as indicated by the large standard deviations. The distribution of the scores obtained by both groups of boys is found in Table XII. A t of 2.26 with 18 degrees of freedom was significant at the 5 per cent level of confidence. Hence, the mean difference of 7.3
was significant and the null hypothesis was rejected at the 5 per cent level of confidence.

**TABLE XII**

FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TEN BOY SCOUTS AND TEN DELINQUENT BOYS ON THE METROPOLITAN ACHIEVEMENT TEST IN GEOGRAPHY

<table>
<thead>
<tr>
<th>Scores</th>
<th>Boy Scouts</th>
<th>Delinquent Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 - 64</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>55 - 59</td>
<td>0</td>
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<tr>
<td>50 - 54</td>
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<td>1</td>
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<tr>
<td>45 - 54</td>
<td>0</td>
<td>0</td>
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<tr>
<td>40 - 44</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>35 - 39</td>
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<td>1</td>
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<tr>
<td>30 - 34</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

Table XIII shows the frequency distribution of the scores obtained by the Boy Scouts and delinquent boys in history. The Boy Scouts had a mean score of 45.1 and a standard deviation of 4.85; the delinquent boys had a mean raw score of 37.4 and a standard deviation of 6.62. A t of 3.09 was significant at the 1 per cent level of confidence. The mean difference of 7.7 was in turn significant and the null hypothesis was rejected at the 1 per cent level of confidence.

The mean score for the Boy Scouts in science was 44.8 and the standard deviation was 4.07. The delinquent boys had a mean score of 37.1 and a standard deviation of 2.45. In this case both groups were fairly homogeneous. This can be seen from the distribution of scores
TABLE XIII

FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TEN BOY SCOUTS AND TEN DELINQUENT BOYS ON THE METROPOLITAN ACHIEVEMENT TEST IN HISTORY

<table>
<thead>
<tr>
<th>Scores</th>
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<th>Delinquent Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 - 54</td>
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<td>0</td>
</tr>
<tr>
<td>45 - 49</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>40 - 44</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>35 - 39</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

presented in Table XIV.

The t of 2.53 was significant at the 5 per cent level of confidence and it is expected that the mean difference of 7.7 will occur only 5 times in 100 by chance.

TABLE XIV

FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TEN BOY SCOUTS AND TEN DELINQUENT BOYS ON THE METROPOLITAN ACHIEVEMENT TEST IN SCIENCE

<table>
<thead>
<tr>
<th>Scores</th>
<th>Number of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boy Scouts</td>
</tr>
<tr>
<td>50 - 54</td>
<td>1</td>
</tr>
<tr>
<td>45 - 49</td>
<td>4</td>
</tr>
<tr>
<td>40 - 44</td>
<td>5</td>
</tr>
<tr>
<td>35 - 39</td>
<td>0</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
</tr>
</tbody>
</table>
In comparing the two groups of girls, namely, the Girl Scouts and the delinquent girls, the scouts scored higher than the delinquents in all comparisons except one, but in not all of the cases were the mean differences found to be significant. The statistical data on these comparisons is found in Table XVI.

The Girl Scouts had a mean score of 49.8 and a mean standard deviation of 6.84 in reading; the delinquent girls had a mean score of 43.4 with a standard deviation of 7.35. The large standard deviation indicated that the distribution of the scores in each group was heterogeneous. Table XV shows the distribution of these scores.

**TABLE XV**

**FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TEN GIRL SCOUTS AND TEN DELINQUENT GIRLS ON THE METROPOLITAN ACHIEVEMENT TEST IN READING**

<table>
<thead>
<tr>
<th>Scores</th>
<th>Number of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Girl Scouts</td>
</tr>
<tr>
<td>55 - 59</td>
<td>4</td>
</tr>
<tr>
<td>50 - 54</td>
<td>1</td>
</tr>
<tr>
<td>45 - 49</td>
<td>3</td>
</tr>
<tr>
<td>40 - 44</td>
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<td>35 - 39</td>
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</tr>
<tr>
<td>30 - 34</td>
<td>0</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Total 10</td>
</tr>
</tbody>
</table>

A t of 1.88 with 18 degrees of freedom was not significant at either the 1 per cent or 5 per cent level of confidence. Hence, the mean difference of 6.4, existing between the two groups, was not
### TABLE XVI
STATISTICAL DATA DERIVED FROM THE SCORES OBTAINED BY TEN GIRL SCOUTS AND TEN DELINQUENT GIRLS ON THE METROPOLITAN ACHIEVEMENT TEST

<table>
<thead>
<tr>
<th>Subtests</th>
<th>Groups</th>
<th>Mean</th>
<th>Mean Difference</th>
<th>t</th>
</tr>
</thead>
<tbody>
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<td>Scouts</td>
<td>49.8</td>
<td>6.84</td>
<td>6.4</td>
</tr>
<tr>
<td></td>
<td>Delinquents</td>
<td>43.4</td>
<td>7.35</td>
<td></td>
</tr>
<tr>
<td>Vocabulary</td>
<td>Scouts</td>
<td>51.8</td>
<td>9.88</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>Delinquents</td>
<td>48.1</td>
<td>7.96</td>
<td></td>
</tr>
<tr>
<td>Arithmetic</td>
<td>Scouts</td>
<td>53.5</td>
<td>7.45</td>
<td>2.7</td>
</tr>
<tr>
<td>Fundamentals</td>
<td>Delinquents</td>
<td>50.8</td>
<td>6.11</td>
<td></td>
</tr>
<tr>
<td>Arithmetic</td>
<td>Scouts</td>
<td>55.5</td>
<td>6.46</td>
<td>13.4</td>
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<tr>
<td>Problems</td>
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<td>52.1</td>
<td>5.45</td>
<td></td>
</tr>
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<td>Scouts</td>
<td>56.6</td>
<td>8.90</td>
<td>19.2</td>
</tr>
<tr>
<td></td>
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<td>37.3</td>
<td>6.20</td>
<td></td>
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<td>Literature</td>
<td>Scouts</td>
<td>44.7</td>
<td>11.60</td>
<td>7.8</td>
</tr>
<tr>
<td></td>
<td>Delinquents</td>
<td>36.9</td>
<td>5.75</td>
<td></td>
</tr>
<tr>
<td>History</td>
<td>Scouts</td>
<td>45.3</td>
<td>19.32</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>Delinquents</td>
<td>47.7</td>
<td>14.90</td>
<td></td>
</tr>
<tr>
<td>Geography</td>
<td>Scouts</td>
<td>47.6</td>
<td>11.40</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>Delinquents</td>
<td>41.6</td>
<td>5.83</td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>Scouts</td>
<td>51.6</td>
<td>6.86</td>
<td>9.1</td>
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<tr>
<td></td>
<td>Delinquents</td>
<td>42.5</td>
<td>6.50</td>
<td></td>
</tr>
</tbody>
</table>

*"t" is significant at the 1 per cent level of confidence.
significant. Hence, the null hypothesis was accepted at the 1 per cent level of confidence.

In reading vocabulary the Girl Scouts had a mean score of 51.8 and a mean standard deviation of 9.88. The delinquent girls had a mean score of 48.1 and a mean standard deviation of 7.96. In this instance, the scout distribution was more heterogeneous than that of the delinquent group. This is indicated by the distribution of scores shown in Table XVII.

**TABLE XVII**

**FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TEN GIRL SCOUTS AND TEN DELINQUENT GIRLS ON THE METROPOLITAN ACHIEVEMENT TEST IN VOCABULARY**

<table>
<thead>
<tr>
<th>Scores</th>
<th>Girl Scouts</th>
<th>Delinquent Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>65 - 69</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>60 - 64</td>
<td>0</td>
<td>0</td>
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<tr>
<td>55 - 59</td>
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<td>1</td>
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<tr>
<td>50 - 54</td>
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<td>5</td>
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<tr>
<td>45 - 49</td>
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<td>1</td>
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<tr>
<td>40 - 45</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>35 - 39</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Total 10 10

A t of .87 with 18 degrees of freedom was not significant at either the 1 per cent or 5 per cent level of confidence. Thus, the mean difference of 3.7 was not significant. Again the null hypothesis was accepted at the 1 per cent level of confidence.

The Girl Scouts scored higher than the delinquent girls in
arithmetic fundamentals with a mean score of 53.5 and a standard deviation of 7.45. The delinquent girls had a mean score of 50.8 and a standard deviation of 6.11. The scores of both groups were widely dispersed as seen by the distribution of scores in Table XVIII.

**TABLE XVIII**

<table>
<thead>
<tr>
<th>Scores</th>
<th>Number of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Girl Scouts</td>
</tr>
<tr>
<td>60 - 64</td>
<td>1</td>
</tr>
<tr>
<td>55 - 59</td>
<td>5</td>
</tr>
<tr>
<td>50 - 54</td>
<td>2</td>
</tr>
<tr>
<td>45 - 49</td>
<td>0</td>
</tr>
<tr>
<td>40 - 44</td>
<td>1</td>
</tr>
<tr>
<td>35 - 39</td>
<td>1</td>
</tr>
</tbody>
</table>

Total 10 10

A t of .82 was not significant at either the 1 per cent or 5 per cent level of confidence. Therefore, the mean difference of 2.7 was not significant and the null hypothesis was accepted at the 1 per cent level of confidence.

Table XIX shows the frequency distribution of scores obtained by both groups of girls in arithmetic problems. The mean score for the Girl Scouts in arithmetic problems was 55.5 and the standard deviation 6.46; the delinquent girls had a mean score of 42.1 and a standard deviation of 5.45. T of 4.75 was found to be significant at the 1 per cent level of confidence. Hence, there is only 1 chance in 100 that the mean
TABLE XIX

FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TEN GIRL SCOUTS AND TEN DELINQUENT GIRLS IN THE METROPOLITAN ACHIEVEMENT TEST IN ARITHMETIC PROBLEMS

<table>
<thead>
<tr>
<th>Scores</th>
<th>Number of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Girl Scouts</td>
</tr>
<tr>
<td>60 - 64</td>
<td>3</td>
</tr>
<tr>
<td>55 - 59</td>
<td>3</td>
</tr>
<tr>
<td>50 - 54</td>
<td>2</td>
</tr>
<tr>
<td>45 - 49</td>
<td>1</td>
</tr>
<tr>
<td>40 - 44</td>
<td>1</td>
</tr>
<tr>
<td>35 - 39</td>
<td>0</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
</tr>
</tbody>
</table>

difference of 13.4 was due to chance factors. The null hypothesis was rejected at the 1 per cent level of confidence.

Girl Scouts as a group scored higher than the delinquent girls in English with a mean difference of 19.2 in their favor. Their mean score in this test was 56.6, while the mean score for the delinquents was 37.3. The standard deviation of the means were 8.90 and 6.20 respectively. A t of 5.32 was found to be significant at the 1 per cent level of confidence. Hence, the null hypothesis was rejected at the 1 per cent level of confidence. The distribution of the scores obtained by both groups of girls in English is presented in Table XX.

The results obtained by the girls in literature were similar to those obtained by them in English in that the Girl Scouts scored higher than the delinquents with a mean score of 44.7 and a standard deviation of 11.60. The delinquent girls had a mean score of 36.9 and a standard deviation of
TABLE XX

FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TEN GIRL SCOUTS AND TEN DELINQUENT GIRLS IN THE METROPOLITAN ACHIEVEMENT TEST IN ENGLISH

<table>
<thead>
<tr>
<th>Scores</th>
<th>Number of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Girl Scouts</td>
</tr>
<tr>
<td>75 - 79</td>
<td>1</td>
</tr>
<tr>
<td>70 - 74</td>
<td>0</td>
</tr>
<tr>
<td>65 - 69</td>
<td>0</td>
</tr>
<tr>
<td>50 - 64</td>
<td>1</td>
</tr>
<tr>
<td>55 - 59</td>
<td>3</td>
</tr>
<tr>
<td>50 - 54</td>
<td>4</td>
</tr>
<tr>
<td>45 - 49</td>
<td>0</td>
</tr>
<tr>
<td>40 - 44</td>
<td>1</td>
</tr>
<tr>
<td>35 - 39</td>
<td>0</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

5.75. Both groups were very heterogeneous as indicated by the large standard deviations and the distribution of scores found in Table XXI. The mean difference of 7.8 was not significant since the t of 1.81 was not significant at either the 1 per cent or 5 per cent level of confidence. It was therefore assumed that this mean difference was due to chance factors.

The differences in History and Geography were not significant,
although the difference in History was in favor of the delinquent girls and the difference of 6.0 in Geography was in favor of the scouts. In History the scouts had a mean score of 45.3 and a standard deviation of 19.82; the delinquent girls had a mean score of 47.7 and a standard deviation of 14.90.

**TABLE XXI**

**FREQUENCY DISTRIBUTION OF THE RAW SCORES OBTAINED BY TEN GIRL SCOUTS AND TEN DELINQUENT GIRLS ON THE METROPOLITAN ACHIEVEMENT TEST IN LITERATURE**

<table>
<thead>
<tr>
<th>Scores</th>
<th>Girl Scouts</th>
<th>Delinquent Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>65 - 69</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>60 - 64</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>55 - 59</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>50 - 54</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>45 - 49</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>40 - 44</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>35 - 39</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>25 - 29</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

A t of .36 was not significant at either the 1 per cent or 5 per cent level of confidence. Therefore, the difference here was due to chance factors. The distribution of the scores obtained by each group of
girls in History is found in Table XXII.

**TABLE XXII**

**FREQUENCY DISTRIBUTION OF THE RAW SCORES OBTAINED BY TEN GIRL SCOUTS AND TEN DELINQUENT GIRLS ON THE METROPOLITAN ACHIEVEMENT TEST IN HISTORY**

<table>
<thead>
<tr>
<th>Scores</th>
<th>Number of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 - 74</td>
<td>Girl Scouts: 2</td>
</tr>
<tr>
<td></td>
<td>Delinquent Girls: 0</td>
</tr>
<tr>
<td>65 - 69</td>
<td>Girl Scouts: 1</td>
</tr>
<tr>
<td></td>
<td>Delinquent Girls: 0</td>
</tr>
<tr>
<td>60 - 64</td>
<td>Girl Scouts: 1</td>
</tr>
<tr>
<td></td>
<td>Delinquent Girls: 0</td>
</tr>
<tr>
<td>55 - 59</td>
<td>Girl Scouts: 0</td>
</tr>
<tr>
<td></td>
<td>Delinquent Girls: 0</td>
</tr>
<tr>
<td>50 - 54</td>
<td>Girl Scouts: 0</td>
</tr>
<tr>
<td></td>
<td>Delinquent Girls: 4</td>
</tr>
<tr>
<td>45 - 49</td>
<td>Girl Scouts: 0</td>
</tr>
<tr>
<td></td>
<td>Delinquent Girls: 4</td>
</tr>
<tr>
<td>40 - 44</td>
<td>Girl Scouts: 0</td>
</tr>
<tr>
<td></td>
<td>Delinquent Girls: 2</td>
</tr>
<tr>
<td>35 - 39</td>
<td>Girl Scouts: 1</td>
</tr>
<tr>
<td></td>
<td>Delinquent Girls: 0</td>
</tr>
<tr>
<td>30 - 34</td>
<td>Girl Scouts: 2</td>
</tr>
<tr>
<td></td>
<td>Delinquent Girls: 0</td>
</tr>
<tr>
<td>25 - 29</td>
<td>Girl Scouts: 3</td>
</tr>
<tr>
<td></td>
<td>Delinquent Girls: 0</td>
</tr>
</tbody>
</table>

Total 10 10

The mean score for the scouts in Geography was 47.6 and the mean standard deviation was 11.40. The delinquent girls had a mean score of 41.6 and a standard deviation of 5.83. The scores of the Girl Scouts were more widely dispersed than those of the delinquents as indicated by the larger standard deviation and the distribution of scores presented in Table 23. The mean difference of 6.0 was due to chance factors since
TABLE XXIII

FREQUENCY DISTRIBUTION OF THE RAW SCORES OBTAINED BY TEN GIRL SCOUTS AND TEN DELINQUENT GIRLS ON THE METROPOLITAN ACHIEVEMENT TEST IN GEOGRAPHY

<table>
<thead>
<tr>
<th>Scores</th>
<th>Girl Scouts</th>
<th>Delinquent Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 - 64</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>55 - 59</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>50 - 54</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>45 - 49</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>40 - 44</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>35 - 39</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

A t of 1.82 with 18 degrees of freedom was not significant at either the 1 per cent or 5 per cent level of confidence. Hence, the null hypothesis was rejected at the 1 per cent level of confidence.

A significant difference of 8.1 was found to exist between the two groups in science. The Girl Scouts had a mean score of 51.6 and a mean standard deviation of 6.86. The delinquent girls had a mean score of 42.5 and a mean difference of 6.5. The distribution of the scores obtained by these two groups of girls is found in Table XXIV. A t of 2.88 was found to be significant at the 1 per cent level of confidence. Thus, the null hypothesis was rejected at the 1 per cent level of confidence.

Personality of the Subjects.-- The statistical data derived from the scores obtained by twenty-five Boy Scouts and the twenty-five de-
lingucent boys on Pintner's Aspects of Personality is found in Table XXV.

TABLE XXIV

FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TEN GIRL SCOUTS AND TEN DELINQUENT GIRLS ON THE METROPOLITAN ACHIEVEMENT TEST IN SCIENCE

<table>
<thead>
<tr>
<th>Scores</th>
<th>Number of Scores</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Girl Scouts</td>
<td>Delinquent Girls</td>
</tr>
<tr>
<td>65 - 69</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>60 - 64</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>55 - 59</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>50 - 54</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>45 - 49</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>40 - 44</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>35 - 39</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

The Boy Scouts had a mean score of 16.88 on Section 1 of the test which measures ascendance-submission. The standard deviation of this mean was 3.68. In as much as this standard deviation was so small it is indicative of the fact that possibly these scores comprised a fairly homogeneous distribution. The distribution of these scores is presented in Table XXVI.

The delinquent boys had a mean score of 17.88 on this section of
TABLE XXV

STATISTICAL DATA DERIVED FROM THE SCORES OBTAINED BY TWENTY-FIVE BOY SCOUTS AND TWENTY-FIVE DELINQUENT BOYS ON PINTNER'S ASPECTS OF PERSONALITY.

<table>
<thead>
<tr>
<th>Test</th>
<th>MEAN</th>
<th>STANDARD DEVIATION</th>
<th>Mean Difference</th>
<th>t</th>
<th>Significance of t*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group 1</td>
<td>Group 3</td>
<td>Group 1</td>
<td>Group 3</td>
<td></td>
</tr>
<tr>
<td>Ascendence-Submission</td>
<td>16.88</td>
<td>17.88</td>
<td>3.68</td>
<td>3.56</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Significant at the 1 per cent level of confidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extroversion-Introversion</td>
<td>21.2</td>
<td>20.00</td>
<td>3.31</td>
<td>3.45</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>Not significant at 5 per cent level of confidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotionality</td>
<td>25.88</td>
<td>19.28</td>
<td>6.00</td>
<td>5.63</td>
<td>6.60</td>
</tr>
<tr>
<td></td>
<td>Significant at the 1 per cent level of confidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*With 48 degrees of freedom t must be at least 2.010 in order to be significant at the 5 per cent level of confidence and at least 2.681 in order to be significant at the 1 per cent level.
TABLE XXVI
FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TWENTY-FIVE BOY SCOUTS AND TWENTY-FIVE DELINQUENT BOYS ON SECTION 1, ASCENDANCE-SUBMISSION, OF ASPECT OF PERSONALITY

<table>
<thead>
<tr>
<th>Scores</th>
<th>BOYS Scouts</th>
<th>BOYS Delinquents</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 - 26</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23 - 24</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>21 - 22</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>19 - 20</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>17 - 18</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>15 - 16</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13 - 14</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>11 - 12</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

The test. The mean standard deviation was 3.56. In this case, as in the case of the Boy Scouts, the group was fairly homogeneous in its distribution of scores. These scores are also presented in Table XXVI. A t of 3.03 with 48 degrees of freedom was found to be significant at the 1 per cent level of confidence. There is only 1 chance in 100 that this difference was due to chance factors.

The mean difference of 1.00 was in favor of the delinquent group of boys. The delinquent boys as a group scored higher on ascendance-submission than did the scouts; hence, they are seemingly not as submissive as scouts or we can say that the data shows that they tend to be
more domineering than the group of Boy Scouts.

On part 11 of the personality inventory which measures extroversion-introversion, the Boy Scouts scored 1.2 points higher than the delinquent boys with a mean score of 21.2 and a standard deviation of 3.31. The delinquent boys' mean score was 20.0 with a standard deviation of 3.45. Table XXVII shows the score distribution of both groups of boys. At of

<table>
<thead>
<tr>
<th>Scores</th>
<th>BOYS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scouts</td>
</tr>
<tr>
<td>26 - 27</td>
<td>2</td>
</tr>
<tr>
<td>24 - 25</td>
<td>4</td>
</tr>
<tr>
<td>22 - 23</td>
<td>7</td>
</tr>
<tr>
<td>20 - 21</td>
<td>4</td>
</tr>
<tr>
<td>18 - 19</td>
<td>6</td>
</tr>
<tr>
<td>16 - 17</td>
<td>1</td>
</tr>
<tr>
<td>14 - 15</td>
<td>0</td>
</tr>
<tr>
<td>12 - 13</td>
<td>0</td>
</tr>
<tr>
<td>10 - 11</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

1.22 with 48 degrees of freedom indicated that the mean difference of 1.2 was not significant at either the 1 per cent or 5 per cent level of
confidence, and is most likely due to chance factors. Therefore, according to the findings here, neither group of boys is either significantly more or less introverted or extroverted than the other. Although the Boy Scouts obtained a higher mean average, the difference cannot be interpreted as meaning anything in particular since it is not significant.

The Boy Scouts scored higher on Section III of the test, which measures emotional stability, than did the group of delinquent boys. The mean score for the Boy Scouts was 25.88 and the standard deviation 6.00. The delinquent group of boys had a mean score of 19.28 and a standard deviation of 5.63. The mean difference of these groups on this variable was 6.60. A t score 3.99 indicated that this difference was significant at the 1 per cent level of confidence. Therefore, according to these findings, the Boy Scouts as a group are more emotionally stable than the delinquent boys. The distribution of the scores obtained by the boys on this section of the test is presented in Table XXVIII.

The statistical data derived from the scores obtained by the twenty-five Girl Scouts and the twenty delinquent girls on the three sections of Pintner's Aspects of Personality is presented in Table XXIX.

When the Girl Scouts were compared with the delinquent girls on Section I of the test, which measures ascendance and submission, the Girl Scouts had a mean score of 16.48 and a mean standard deviation of 3.58. The delinquent girls had a mean score of 13.84 and a mean standard deviation of 4.11. In both instances, the comparatively small deviations indicated that both groups were fairly homogeneous. The distribution of the scores obtained by both groups of girls is presented in Table XXX. A t of 1.81 with 43 degrees of freedom was not significant at either the
TABLE XXVIII
FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TWENTY-FIVE BOY SCOUTS AND TWENTY-FIVE DELINQUENT BOYS ON SECTION IIII, EMOTIONALITY, OF ASPECTS OF PERSONALITY

<table>
<thead>
<tr>
<th>Scores</th>
<th>BOYS Scouts</th>
<th>BOYS Delinquents</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 - 33</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>30 - 31</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>28 - 29</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>26 - 27</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>24 - 25</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>22 - 23</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20 - 21</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>18 - 19</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>16 - 17</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>14 - 15</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12 - 13</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10 - 11</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>8 - 9</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>

5 per cent level of confidence. Hence, the mean difference of 2.64 was attributed to chance factors and the null hypothesis was rejected at the 1 per cent level of confidence.

On Section II of the test, the group of Girl Scouts scored higher
<table>
<thead>
<tr>
<th>Test</th>
<th>MEAN Group 2</th>
<th>MEAN Group 4</th>
<th>STANDARD DEVIATION Group 2</th>
<th>STANDARD DEVIATION Group 4</th>
<th>Mean Difference</th>
<th>t</th>
<th>Significance of t*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ascendance—Submission</td>
<td>16.48</td>
<td>13.84</td>
<td>3.58</td>
<td>4.11</td>
<td>2.64</td>
<td>1.81</td>
<td>Not significant at the 5 per cent level of confidence</td>
</tr>
<tr>
<td>Extroversion—Introversion</td>
<td>22.24</td>
<td>21.1</td>
<td>2.53</td>
<td>2.05</td>
<td>1.14</td>
<td>1.46</td>
<td>Not significant at the 5 per cent level of confidence</td>
</tr>
<tr>
<td>Emotionality</td>
<td>23.6</td>
<td>18.75</td>
<td>6.51</td>
<td>6.83</td>
<td>4.85</td>
<td>2.40</td>
<td>Significant at the 5 per cent level of confidence.</td>
</tr>
</tbody>
</table>

*With 43 degrees of freedom t must be at least 2.016 in order to be significant at the 5 per cent level of confidence and at least 2.693 in order to be significant at the 1 per cent level.
TABLE XXX

FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TWENTY-FIVE GIRL SCOUTS AND TWENTY DELINQUENT GIRLS ON
SECTION 1: ASCENDANCE-SUBMISSION, OF
ASPECTS OF PERSONALITY

<table>
<thead>
<tr>
<th>Scores</th>
<th>GIRLS Scouts</th>
<th>GIRLS Delinquents</th>
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</thead>
<tbody>
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<td>24 - 25</td>
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<td>1</td>
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<tr>
<td>22 - 23</td>
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<td>3</td>
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<tr>
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<td>5</td>
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<tr>
<td>16 - 17</td>
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<td>1</td>
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<td>14 - 15</td>
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<td>8 - 9</td>
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than the group of delinquent girls with a mean score of 22.24 and a
standard deviation of 2.53. The delinquent girls had a mean score of
21.1 and a standard deviation of 2.05. The mean difference of 1.14
was not significant as indicated by the t of 1.46 with 43 degrees of
freedom. The same conclusion that was drawn in the case of the groups
of boys applies here; neither group of girls is significantly more or
less introverted or extroverted than the other. And the higher mean score
obtained by the Girl Scouts on this section cannot be interpreted as
as meaning anything definite since the difference between the two means was significant. Table XXXI shows the distribution of the scores obtained by the two groups of girls on this section of the test.

**TABLE XXXI**

<table>
<thead>
<tr>
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<th>Girls</th>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>15 - 17</td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>25</td>
<td>20</td>
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The Girl Scouts as a group scored higher on emotional stability than the delinquent girls with a mean score of 23.6 and a standard deviation of 6.51. The delinquent girls had a mean score of 18.75 and a standard deviation of 6.83. The mean difference of 4.85 was found to be significant at the 5 per cent level of confidence since a t of 2.40 with 43 degrees of freedom was significant at the 5 per cent level of confidence. Therefore, the null hypothesis was rejected at the 5 per cent level of confidence. The distribution of the scores obtained by the Girl Scouts
and the delinquent girls on Section III of this test is presented in Table XXXII.

**TABLE XXXII**

FREQUENCY DISTRIBUTION OF RAW SCORES OBTAINED BY TWENTY-FIVE GIRL SCOUTS AND TWENTY DELINQUENT GIRLS ON SECTION III, EMOTIONALITY, OF ASPECTS OF PERSONALITY

<table>
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<th>GIRLS Delinquents</th>
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</thead>
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<tr>
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<td><strong>25</strong></td>
<td><strong>20</strong></td>
</tr>
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</table>
CHAPTER IV

FINDINGS AND CONCLUSIONS

Findings.—A summary of the findings of this study reveals the following:

1. The Boy Scouts, as a group, scored significantly higher in intelligence than the delinquent boys. This difference of 10.72 was significant at the 1 per cent level of confidence as indicated by a t of 5.96.

2. The Girl Scouts, as a group, scored significantly higher in intelligence than the delinquent girls with a mean difference of 8.04 in their favor. A t of 2.41 was found to be significant at the 5 per cent level of confidence.

3. In reading the Boy Scouts scored significantly higher than the delinquent boys with a mean difference of 11.0 in their favor. A t of 4.10 was significant at the 1 per cent level of confidence.

4. On the vocabulary test a significant difference was found at the 1 per cent level of confidence. This mean difference was in favor of the Boy Scouts.

5. A significant difference was found at the 1 per cent level of confidence in arithmetic fundamentals. This mean difference of 6.42 was in favor of the Boy Scouts.

6. A significant difference was found at the 5 per cent level of confidence in arithmetic problems. This mean difference of 3.3 was in favor of the Boy Scouts.

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7. The Boy Scouts scored significantly higher than the delinquent boys in English with a mean difference of 12.1 in their favor. A t of 4.10 was significant at the 1 per cent level of confidence.

8. No significant difference was found between the two groups of boys in literature.

9. A significant difference of 7.7, in favor of the Boy Scouts, was found in history. A t of 3.09 was significant at the 5 per cent level of confidence.

10. In geography the Boy Scouts scored higher than the delinquent boys with a mean difference of 7.3 in their favor. This difference was significant at the 5 per cent level of confidence as indicated by a t of 2.26.

11. A significant difference of 7.7, in favor of the Boy Scouts, was found in science. A t of 2.53 was significant at the 5 per cent level of confidence.

12. Not as many significant differences were found in the achievement of the Girl Scouts and the delinquent girls as were found in the achievement of the two groups of boys.

13. No significant differences were found in reading or vocabulary when the two groups of girls were compared on these variables.

14. No significant difference was found to exist between the two groups of girls in arithmetic fundamentals.

15. A significant difference of 13.4, in favor of the Girl Scouts, was found in arithmetic problems. A t of 4.75 was significant at the 1 per cent level of confidence.

16. The Girl Scouts scored significantly higher than the delinquent
girls in English with a mean difference of 19.2 in their favor. This
difference was significant at the 1 per cent level of confidence as in-
dicated by a t of 5.32.

17. No significant difference was found in the achievement of the
two groups of girls in literature.

18. No significant difference was found in the achievement of the
two groups of girls in either history of geography.

19. There was a significant difference in the achievement of the
Girl Scouts and the delinquent girls in science. This mean difference of
9.1 was in favor of the Girl Scouts, and was significant at the 1 per cent
level of confidence.

20. The delinquent boys scored significantly higher than the Boy
Scouts on ascendance-submission. The mean difference of 1.00 was sig-
nificant at the 1 per cent level of confidence.

21. No significant difference was found between the two groups of
boys on the test of extroversion-introversion.

22. The Boy Scouts scored significantly higher on emotionality than
the group of delinquent boys. The mean difference of 6.60 was signifi-
cant at the 1 per cent level of confidence.

23. There was no significant difference found between the two groups
of girls on the test of ascendance-submission.

24. No significant difference was found between the two groups of
girls on the test of extroversion-introversion.

25. The Girl Scouts scored significantly higher on emotionality
than the group of delinquent girls. The mean difference of 4.85 was
significant at the 5 per cent level of confidence.
Conclusions.—According to the findings of this study, the Boy Scouts and the Girl Scouts were superior in intelligence to the delinquent boys and girls. The null hypothesis was, here, rejected at the 1 per cent level of confidence when the boys were compared and it was rejected at the 5 per cent level of confidence when the two groups of girls were compared.

In achievement, the Boy Scouts, as a group, scored significantly higher than the delinquent boys on all of the variables except literature. This seemingly implies that Boy Scouts attain a higher achievement level than delinquent boys. The null hypothesis was rejected here at the 5 per cent level of confidence.

In achievement, the Girl Scouts surpassed the delinquent girls on only three of the nine variables tested.

From the findings derived from the test results obtained from the administration of the personality inventory we can conclude that, the delinquent boys, as a group, were more domineering than the Boy Scouts. The Boy Scouts used in this study were more emotionality stable than the delinquent boys.

The Girl Scouts were more stable than the delinquent girls. Neither group of girls was significantly more or less introverted than the other. According to the findings, we cannot conclude that either group of girls was significantly more domineering than the other.

This study indicates that there are significant differences in the intelligence, achievement, and personality of scouts and delinquents. All of the differences, in favor of the scouts, imply that the scouts as a group are superior in intelligence and achievement to the delinquents.
and that they too develop more well rounded personalities than the delinquent boys and girls.

The significant differences found here cannot be attributed to class differences since class was constant; they are probably due to outside factors not considered in this study.
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Caldwell, M. G. "The Economic Status of Families of Delinquent Boys
Courthial, A. "Emotional Differences Between Delinquent and Non-Delinquent Girls of Normal Intelligence," Archives of Psychology, No. 133 (December, 1940), 100.


ASPECTS OF PERSONALITY

By Rudolf Pintner
Professor of Education
Teachers College, Columbia University

John J. Loftus
Assistant Superintendent of Schools, New York City

George Forlano
Assistant in Educational Psychology
Teachers College, Columbia University

and Benjamin Alster
Teacher, Public Schools of New York City

For Grades 4 to 9 Inclusive

Date..........................19...
de....................Age...yrs....mos. Teacher..............................
ool..........................City..............State.........................

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<td>II</td>
<td>Extroversion-Introversion</td>
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SECTION I

1. When some child tries to push into line ahead of me, I am not afraid to tell him to get back.
2. I try to be the first one to get on a streetcar.
3. I am among the first to yell at a game.
4. I try to get a seat in the streetcar or train before someone else does.
5. I get angry when the class leader is too "bossy."
6. I am usually doing the talking in any crowd.
7. I find it hard to talk before other children.
8. I talk back to a friend who is "bossy."
9. I like to show people around to meet other people.
10. If there are pieces of salt in my ice cream, I tell the storekeeper about it.
11. I tell the grocer that it is my turn when the grocer tries to wait on someone else first.
12. I try to get the storekeeper to sell me candy at a cheaper price.
13. Even though I don't understand what the teacher says, I don't ask her to say it again.
14. I do almost everything other people tell me to do.
15. I am often against what people say.
16. I stick to what I've said even if other children don't like it.
17. I don't mind when other children get ahead of me in line.
18. I have a lot of nerve.
19. I always want to have my way with other people.
20. I try to get my own way even if I have to fight for it.
think that friends who don’t agree with me are rigid. ........................................ S D 21
raise my hand so that the teacher will call on me to on an errand. ........................................ S D 22
do not like to be the leader in games. ........................................ S D 23
start the fun at a quiet party. ........................................ S D 24
do not like to start a new game among my friends, it I let someone else do it. ........................................ S D 25
like to be the first in line when I play a game. ........................................ S D 26
get the boys and girls together for parties, clubs, and ams. ........................................ S D 27
don’t like to ask questions in class. ........................................ S D 28
want to lead the class. ........................................ S D 29
like to stick up for my rights. ........................................ S D 30
like to talk with someone else about my work. ........................................ S D 31
like to go from one group of children to another and talk. ........................................ S D 32
When I make up my mind not to do a thing, I just don’t do it. ........................................ S D 33
always want to be with my father and mother. ........................................ S D 34
feel sure I can do things I want to do. ........................................ S D 35

(Go right on to the next page.)
SECTION II

1. I do not like to have people ask me questions about myself. .......................... S

2. I like baseball and football better than quiet games. .................. S

3. I would rather go to a party than stay at home. .................. S

4. I would rather play with other children than play alone. .................. S

5. I have many friends. .................................. S

6. I do not make friends easily. .................................. S

7. I like to go to school early because I have many friends waiting for me. .................. S

8. I like to make new friends. .................................. S

9. I like friends more than books. .................................. S

10. I find it easy to start speaking to a new pupil. .................. S

11. I keep quiet when I am with other people. .................. S

12. I like to spend my vacation at some quiet place. .................. S

13. I do not mind when people say bad things about me. .................. S

14. I like to spend money. .................................. S

15. I can be scolded without feeling hurt. .................................. S

16. I make up my mind quickly. .................................. S

17. I like to be in assembly plays. .................................. S

18. I like to have people look at me when I am working. .................. S

19. I like to read before the class. .................................. S

20. I do not like to work alone. .................................. S

21. I make up my mind without much thinking. .................. S

22. I like to go camping rather than read about it. .................. S

23. I would sooner say than write what I think. .................. S

[ 4 ] (Go right on to the next)
Aspects of Personality

I like to think a great deal. ........................................ S D 24
I want to work alone because I don't want other people to be praised for my ideas. ........................................ S D 25
I feel at home at parties. ........................................ S D 26
I would rather play checkers than play ball. ............... S D 27
I like to belong to clubs. ........................................ S D 28
I like to play rough sports. ....................................... S D 29
I like to tell my friends all about things that happen to me. ........................................ S D 30
I worry about the little mistakes I make. ....................... S D 31
I like to read poetry. ............................................. S D 32
I think of smart things to say afterward, when it is too late. ........................................ S D 33
I like to take charge of things for the teacher. ............... S D 34
I like to go around classes, collecting money for the Red Cross. ........................................ S D 35

(Ok right on to the next page.)
SECTION III

1. I like to go to the movies.  
2. I think most children like to make fun of me.  
3. I get angry about nothing.  
4. I get so angry I can't talk.  
5. I fall and trip over things.  
6. I like to listen to the radio.  
7. I find it hard to forget my troubles.  
8. I often talk to myself.  
9. I like animals as pets.  
10. I often have ideas run through my head, so that I cannot sleep.  
11. I never tear pages from my school or library books.  
12. I often giggle and laugh for no reason at all.  
13. I often cry without good reason.  
15. I am always afraid that sad things will happen to me.  
16. I do not talk during fire drill.  
17. I think that I was happier when I was a baby.  
18. I always cross the street at the corners.  
19. I often think people follow me at night.  
20. I think that my friends are against me.  
21. I often find it hard to breathe.  
22. I feel tired most of the time.  
23. I often feel sick when I have to go to school.  
24. I worry about getting sick.  
25. I don't like to be absent.

(Go right on to the next page)
am afraid to sit in a small room with the door shut. S D 26
am very much afraid of water. S D 27
wish to do the right thing, but sometimes I can’t et myself to do it. S D 28
cannot stand even a small noise. S D 29
am afraid of thunder. S D 30
feel that I haven’t a friend. S D 31
like my school because it is clean. S D 32
everything gets on my nerves. S D 33
often feel sad for no reason at all. S D 34
say one thing and do another. S D 35
like to tease my friends until they cry. S D 36
like this Same–Different game. S D 37
believe almost anything that anybody tells me. S D 38
cry when I am in trouble, because then people pity me. S D 39
can’t forget a wrong that’s been done me. S D 40
think that everybody keeps away from me. S D 41
think my teacher is always watching me. S D 42
think my parents pick on me too much. S D 43
feel I get blamed for things I did not do. S D 44

III

Score
Here is a picture of some children playing a game called *Same-Diff*.

In playing this game the teacher writes a sentence on the blackboard, such as "I like my school." Then she asks all those children who feel the same way to raise their hands. Next she asks all those who feel different to raise their hands. Someone counts the hands and keeps score. The teacher writes the number of these sentences on the board, and for each one she asks those who feel the same to raise their hands and then she asks those who feel different to raise their hands.

We are going to play this game, too; only this time you will find all the sentences written in this booklet. Read each sentence carefully. Ask yourself whether you feel the same or different. If you feel the same, cross out the little square at the right which has the letter S in it, like this:

```
  I like my school.
```

If you feel different, cross out the square with the D in it, like this:

```
  I like my school.
```

Read every statement, decide how you feel about it, and then cross out the square which tells how you feel.

There are no right or wrong answers, since many people feel different about these matters.
**METROPOLITAN ACHIEVEMENT TESTS**

**INTERMEDIATE BATTERY — COMPLETE: FORM R**

By Richard D. Allen, Ph.D.
Harold H. Bixler, Ph.D.
William L. Connor, M.A.
and Frederick B. Graham, P.D.M.

---

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*Do not include when figuring average achievement.*

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TEST 1. READING

DIRECTIONS. In each paragraph a blank line means that a word has left out. Read each paragraph. Then think of the word that should be in each blank. Write the word in the parentheses at the side of the page. You should get the answer from the paragraph itself.

SAMPLE. Dick, Tom, and Fred are brothers. The names of Dick's brothers are (a) and (b) .

1. In winter we wear coats. Our (a) keep us warm.

2–3. Billie has a brown dog. His (b) has a white spot on his back, and so Billie (c) him Spotty.

4. History is the story of what has happened. To learn about the past of the United States, we read its (d).

5–9. When you read a line of print, your eyes move across the page in jumps. If you are a good (e), your (f) make three or four jumps to a line. If you (g) are a (h) reader, your eyes may make as many as eight or ten (i) to a (j).

10–14. The two Wright brothers read every book and article they could find on the theory of flying. They (k) studied the movements of hawks and other great birds, as these birds soared high up in the (l). After months of study and hard work they built a (m), which they (n) thought would (o). It was made of wood and cloth and weighed, with one brother in it, only 750 pounds. At Kittyhawk, North Carolina, in 1903, they gave the new plane a trial, with one brother as pilot. It rose from the (p) and flew through the air for several (q) seconds. This was the first time that a motor-driven, heavier-than-air machine carried a (r) through the air.

15–18. The most interesting of all the Atlantic fishing ports is Gloucester. For three hundred years fishermen have sailed out of (s) to the fishing grounds (t), which extend from Cape Hatteras to Greenland. The life of a (u) is not an easy one, for many men sail out from this port never to (v). Each year the people of the village hold a memorial service for these heroes by spreading flowers over the (w) of the harbor.

19–20. During cold weather, a house is continually losing heat. Heat escapes through the walls, cracks around windows, and opened doors. To keep the house comfortable, the furnaces and stoves must supply enough (x) to take the place of that which is (y).
25. Ever since man has lived on the earth, he has had some form of wealth. He always has had things that are useful and valuable to him. Not everything is useful is wealth. We could not live without it (21) is not wealth. It is not (22) because it is an unlimited supply of it. You can get all you want of it without cost. If you own a spring, you get all the water you want without (23) It is not (24) because an unlimited supply of it. You can get all you want of it without cost. If you own a spring, you get all the water you want without (23). In this (24) is not wealth. But if you get water in your through pipes, you have to (26) for it. In this water is wealth.

29. Science is finding out that the water we drink through pipes, you have to (26) for it. In this water is wealth.

29. Science is finding out that the water we drink our lives is far more than we know. Now we are at the (26), we drink has a great deal to do with number of cavities in our teeth. It has been found the presence of a chemical called fluorine in drinkwater will slow down or stop tooth decay. The quantity of (27) needed in the water to prevent tooth is so small we can hardly imagine it, one part per million in one million parts water. Too much fluorine the enamel of the (28) to become mottled in appearance.

32. Generally speaking, the best watchdogs are those with upright ears. They seem to be always on the lookout for the slightest sound. The term "watch-dog" seems to be a poor name, for a good watchdog is really a "listen-dog." Almost always, it (32) it sees.

38. The common song of the black-capped chickadee is a call of two sweet, clear, whistled notes, the lower note being lower than the (33). If you can get high enough, you can (34) this call. Often in get the birds to (35) your call. The chickadee has several other calls. One of these calls is like "chickadee," and is the one from which the bird gets its (36) name.

40. Early man kept a record of his counting by using a tally stick or by making a pile of pebbles. The stick served best when he wanted a permanent record while the (37) could be used over and over again. From the loose pile of pebbles in time developed the counting frame. At first this was a series of grooves in a flat surface, in which he up the (38). Later it became a series of upright (39) on which beads or stones with holes in them could be placed. Finally the ends of the (39) were joined together to make the counting (40) as we know it today.
DIRECTIONS. Read each paragraph. Then read the questions below. Write the answer to each question in the parentheses after it. You can read the paragraph again if you wish to. Each question can be answered by one word or, at most, a few words. You should get the answer to the question from the paragraph itself.

The fur of the mink is popular both because of its quality and its rarity. Raising minks for their furs is called mink ranching. The pelts from ranch minks are now considered better than those from wild minks. Because minks fight with each other, they are kept in separate small pens. These have wire floors and tops and are raised off the ground. The minks are fed mostly raw meat or fish. The young minks, called kits, are born in spring, sometimes as many as ten in a litter. In the early winter, they are killed and their skins or pelts are prepared for use in fur coats and other articles.

41. Why are several minks not kept in the same pen? (_________________)

42. What is another name for the skin of a fur-bearing animal? (_________________) (Bell, inventor of the telephone, was born in Scotland. He went to Canada when he was twenty-three years old, and two years later he came to the United States, where he became a professor at Boston University. The telephone was born in Boston on June 2, 1875, in a little electrical shop on Court Street. This was three years after Bell came to the United States. In 1876, when Bell was twenty-nine years old he exhibited his telephone at the Philadelphia Exposition. Later that year and early the following year, he and a helper went about the country giving lectures and showing how the telephone worked. People were very much interested, but considered the telephone as a toy rather than anything useful. Not until May, 1877, was anyone willing to pay for a telephone.

43. What two foods are the minks most commonly fed? (_________________)

44. When are the minks killed for their furs? (_________________)

45. What is another name for the baby minks? (_________________)

46. Write in the answer space the letter which appears in front of the best title for this paragraph —
   a. Wild Minks   b. Making Mink Coats
   c. Raising Minks for Fur   d. Feeding the Minks (_________________)

47. In what country was Bell born? (_________________)

48. How old was Bell when he came to the United States? (_________________)

49. In what city did Bell do his most famous work? (_________________)

50. In what year was Bell at the Philadelphia Exposition? (_________________)

51. What did the telephone seem like to most people? (_________________)

52. Write in the answer space the letter which appears in front of the best title for this paragraph —
   a. Early Telephones   b. Bell, Inventor of the Telephone
   c. The Usefulness of the Telephone
   d. The Philadelphia Exposition (_________________)
few professional photographers and fewer amateurs are skilled in the photographic negative etching. This is the art of scraping selected tive more light will pass through the thinned areas, thus making the corresponding areas in the photographic print darker. Failure in this art, more often than not, is due to the use of the wrong kind of knife. A sharp blade which holds its sharpness is needed. in, flexible blade is not as satisfactory as a thicker, more rigid one. Art is easily mastered art? ( )

What kind of tool is used? ( )

Of the following words is used to describe this "knife"—dull, round, sharp, pointed? ( )

Does the etching process lighten or darken the final product? ( )

What makes a cheap etching tool more expensive in the long run? ( )

In the answer space the letter which appears in front of the best answer—
a. How to Make a Picture
b. Photographic Etching, a Difficult Art
c. How to Thin a Negative
d. Etching Knives

One day a man, hiking in the fields, happened upon a butterfly struggling to free itself from its cocoon. He watched for a time, feeling sorry for the weak and helpless creature, struggling so hard. Finally he took a sharp knife from his pocket and quickly cut open the cocoon, allowing the butterfly to escape. To his amazement the poor little creature flapped its weak wings for a time but soon entirely gave up trying to fly. This struggle to escape from the cocoon was nature's way of preparing the butterfly for the much more difficult tasks that lay ahead. Because of this experience, the butterfly was unable to fly.

This word tells you that seeing the butterfly was intellectual? ( )

This word tells you that the hiker was surprised at the result of his kindness? ( )

Butterfly's struggle for escape is: harmful, useless, necessary. ( )

In the answer space the letter in front of the sentence which tells what lesson this story teaches—
a. One should not give up without a struggle.
b. It is healthy to be out-of-doors.
c. Greatness knows itself.
d. Overcoming small difficulties gives strength to meet greater ones. ( )

STOP!

Stand. score........ Gr. equin. .......... Age equin. ............
**TEST 2. VOCABULARY**

**DIRECTIONS.** In the parentheses after each question write the number of the word that makes the sentence most nearly true.

**SAMPLE.** Big means the same as — 1 bad 2 pretty 3 large 4 tiny

<p>| | | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1. A <strong>friend</strong> is one — 1 strike 2 throw 3 love 4 fear....</td>
<td>2. A <strong>noise</strong> is a — 1 smell 2 sound 3 joke 4 song....</td>
<td>3. To be <strong>safe</strong> is to be — 1 dangerous 2 sad 3 sick 4 secure</td>
<td>4. I <strong>finish</strong> means I — 1 hurry 2 search 3 forget 4 complete</td>
<td>5. A <strong>mile</strong> is a — 1 race 2 law 3 measure 4 drawing....</td>
</tr>
<tr>
<td>6. <strong>Human</strong> refers to — 1 houses 2 promises 3 monkeys 4 man</td>
<td>7. To <strong>discover</strong> means to — 1 know 2 find 3 close 4 consider</td>
<td>8. Almost means — 1 sometimes 2 never 3 always 4 nearly</td>
<td>9. Fear is the same as — 1 accident 2 noise 3 terror 4 dark</td>
<td>10. Huge best describes an — 1 apple 2 ant 3 elephant 4 elf</td>
</tr>
<tr>
<td>11. Same means — 1 different 2 even 3 like 4 small....</td>
<td>12. Feeling means — 1 crying 2 striking 3 pushing 4 touching</td>
<td>13. Pardon means — 1 freedom 2 forgiveness 3 privilege 4 guilt</td>
<td>14. Hardly means — 1 barely 2 surely 3 slowly 4 softly....</td>
<td>15. To <strong>remember</strong> is to — 1 write 2 recite 3 resist 4 recall....</td>
</tr>
<tr>
<td>16. She replies means she — 1 complains 2 demands 3 fills 4 answers</td>
<td>17. A <strong>mistake</strong> is — 1 an error 2 a crime 3 a haze 4 a disaster</td>
<td>18. Terror is the same as — 1 liberty 2 fright 3 hatred 4 sympathy</td>
<td>19. To <strong>shield</strong> means to — 1 arm 2 shift 3 conflict 4 protect</td>
<td>20. Sorrow means — 1 anxiety 2 refinement 3 pleasure 4 grief</td>
</tr>
<tr>
<td>21. To <strong>amaze</strong> means to — 1 wander 2 vanish 3 astonish 4 collect</td>
<td>22. To <strong>form</strong> means to — 1 practice 2 leave 3 express 4 shape</td>
<td>23. A companion is — 1 an agreement 2 a treaty 3 a comrade 4 a gift</td>
<td>24. To <strong>transfer</strong> means to — 1 ride 2 pierce 3 occur 4 shift....</td>
<td>25. Innocent means — 1 afraid 2 strange 3 guiltless 4 criminal</td>
</tr>
<tr>
<td>26. Attempt means — 1 go 2 reach 3 try 4 accomplish....</td>
<td>27. Life means — 1 end 2 strength 3 hope 4 existence....</td>
<td>28. Reckless means — 1 heartless 2 careless 3 fearful 4 useless</td>
<td>(Go right on to the next)</td>
<td></td>
</tr>
</tbody>
</table>
nation means — 1 correction 2 hatred 3 hospital 4 knowledge ( )

manage means to — 1 teach 2 spoil 3 follow 4 direct ( )

patient is to be — 1 ill 2 evident 3 uncomplaining 4 rude ( )

rouse means to — 1 ascend 2 annoy 3 awaken 4 arrive ( )

ference is a — 1 federation 2 discussion 3 conflict 4 speech ( )

range is to — 1 happen 2 risk 3 alter 4 bite . . . . ( )

rship means — 1 offer 2 possession 3 right 4 partnership ( )

rants means he — 1 withdraws 2 offends 3 grasps 4 gives ( )

roceed means to — 1 prove 2 follow 3 advance 4 lead ( )

ccustom is to — 1 harmonize 2 familiarize 3 collect 4 affront ( )

pose means to — 1 crush 2 suppose 3 resist 4 rest ( )

m means — 1 frequently 2 now 3 surely 4 rarely ( )

rvey means to — 1 sway 2 overspread 3 drive 4 inspect ( )

e serious is to be — 1 earnest 2 smart 3 lazy 4 intelligent ( )

eieve means to — 1 ease 2 abandon 3 remedy 4 depart ( )

runtain is part of — 1 a city 2 the earth 3 the sea 4 a hill ( )

ncern means — 1 justice 2 evidence 3 interest 4 indifference ( )

lige is to — 1 manage 2 erase 3 favor 4 oppose . . . ( )

ence means — 1 disease 2 grippe 3 authority 4 wealth ( )

orthy means — 1 uneasy 2 unfair 3 useless 4 undeserving ( )

bit means — 1 invade 2 instill 3 dwell 4 discover . . . ( )

ry means — 1 alone 2 reliable 3 sullen 4 numerous ( )

voke is to — 1 ridicule 2 call 3 encourage 4 irritate ( )

ion means — 1 purpose 2 indifference 3 consideration 4 discovery . . . . . . . . . . . . . . ( )

ong for means to — 1 extend 2 crave 3 look 4 envy ( )

mean — 1 fruits 2 cases 3 occasions 4 facts . . . . ( )

am is a — 1 sleep 2 plan 3 fear 4 fancy . . . . . . . . ( )

STOP!
### TEST 3. ARITHMETIC FUNDAMENTALS

**Directions.** Work each example and write the answer in the box. If you have to copy your answer, be sure to copy it correctly. Reduce improper fractions to mixed numbers, and all fractions to lowest terms.

<table>
<thead>
<tr>
<th></th>
<th>Add</th>
<th></th>
<th>Subtract</th>
<th></th>
<th>Multiply</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>8</td>
<td>5</td>
<td>6. 9</td>
<td>4</td>
<td>14.</td>
</tr>
<tr>
<td>2.</td>
<td>8</td>
<td>0</td>
<td>7. 11</td>
<td>4</td>
<td>15.</td>
</tr>
<tr>
<td>3.</td>
<td>29</td>
<td>6</td>
<td>8. 87</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>9</td>
<td>7</td>
<td>9. 704</td>
<td>270</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>2 4 9 9 2 9</td>
<td>8 2</td>
<td>10. 7 7 1 3 1 5</td>
<td>1 6 6 4 2 8</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>5 7 3 0 6 7 5 8</td>
<td>12. 5 2 1 4</td>
<td>11. 2 8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 7. | 7 9 4 7 | 9 | 13. 8 4 7 9 | 19. 7 9 4 7 | (Go right on to the next page)
27. Subtract \[ \frac{1}{2} - \frac{1}{8} = \]

28. Subtract \[ \frac{7}{8} - \frac{3}{8} = \]

29. Subtract \[ \frac{7}{8} - \frac{1}{2} = \]

30. Subtract \[ \frac{9}{2} - \frac{5}{8} = \]

31. Subtract \[ \frac{4}{1} - \frac{2}{3} = \]

32. \[ \frac{1}{5} \text{ of } 205 = \]

33. \[ \frac{3}{5} \times \frac{5}{12} = \]

34. \[ 12 \times 2\frac{3}{4} = \]

(\text{Go right on to the next page.})
35. \( \frac{61}{4} \times 8 \times 2\frac{2}{5} = \) □

41. \$78 - \$3.11 = \$ □

36. \( 12 \div \frac{3}{4} = \) □

42. \( 100 \times .066 = \) □

37. \( \frac{2}{3} \div \frac{5}{6} = \) □

43. \( .24 \times 52.4 = \) □

38. \( \frac{3}{5} \div 12 = \) □

44. Which subject was liked best?

39. \( 5\frac{1}{3} \div 1\frac{1}{6} = \) □

45. About how many pupils liked physical training best?

40. Add
   
   \[
   \begin{array}{c}
   \begin{array}{c}
   2.41 \\
   85.006 \\
   235.054 \\
   .745 \\
   260.12 \\
   9.327 \\
   \end{array}
   \end{array}
   \]

   \]
53. The distance on above map from A to B is \(1\frac{3}{4}\) in. According to the given scale what is distance in miles?

54. 60% of 24 =

55. 5% of 300 =

56. 37\(\frac{1}{2}\)% of 24 =
TEST 4. ARITHMETIC PROBLEMS

DIRECTIONS. Work each problem and write the answer in the box at the right of the problem. Do your work in the margin at the right of the page.

1. There were 7 visitors at school on Monday, 5 on Tuesday, 3 on Wednesday, and 9 on Thursday. How many visitors came during the week?__________

2. In our room there are 14 erasers on the front board and 9 erasers on the side board. How many are there in the room?__________

3. There were 19 books on the teacher's desk. She asked me to put 13 in the closet. How many were left on her desk?__________

4. Martin's mother gave him 75¢ for lunches for his brother, his sister, and himself. She told him to divide the money equally. How much could each child spend for lunch?__________

5. Monday morning our teacher received 3 packages of paper. She said that in each package there were 480 sheets. How many sheets of paper did she receive?__________

6. At the beginning of the term I had $4.05 in the school bank. I now have $6.15. How much did I put in this term?__________

7. Arthur paid a debt of $7.82 with a 10-dollar bill. How much change should he receive?__________

8. There are 224 pupils going to the museum. Each bus holds 32 pupils. How many busses will be needed?__________

9. The principal said that 1/8 of the fourth-grade children were absent today because it rained. If there are 32 children in the fourth grade, how many were absent?__________

10. If ice-cream cones are 10 for 7¢, what must we pay for 100 cones?__________
Each of the 78 fifth-grade pupils will go to the school picnic. It will cost 37¢ for each pupil. How much is that in all?...

Mrs. Doyle bought two chickens for dinner. One chicken weighed \(3\frac{3}{4}\) pounds and the other \(2\frac{3}{4}\) pounds. How many pounds of chicken did she buy in all?...

My mother bought a gallon can of maple syrup, which she put into pint jars. How many pint jars did she use?...

Mr. Jones drove his car 525 miles and bought 35 gallons of gasoline. How many miles did he travel on a gallon of gasoline?

Emil's father got 20 baskets of berries. He said he would give a fourth of them to his brother and a fourth to a neighbor and keep the rest. How many baskets was he going to keep?

Alfred wants a tennis racket that costs $5.85, a tennis net that costs $6.75, and 4 balls that cost 45¢ each. What did the whole tennis outfit cost?

There are 19 boys in our club. We made a radio that cost $23.18. If we share the cost equally, how much should each boy pay?

Rose had a piece of ribbon \(3\frac{7}{8}\) yards long. She had \(1\frac{1}{4}\) yards left after making bows. How many yards did she use for the bows?

Mr. Lane bought a new flagpole for his front yard. It is \(28\frac{3}{8}\) feet long. If he puts it \(4\frac{3}{4}\) feet into the ground, how many feet of the pole will be above ground?

Ned bought \(\frac{1}{2}\) dozen roses for $1.68. At that price what did one rose cost him?

Mr. Nelson bought a table for $12.75. He paid $1.50 to have it carted to his shop. He spent $1.69 to repaint it. He sold it for $20.00. How much did he gain on it?

Nancy had the following marks in her mid-term tests: 92, 68, 84, 74, and 100. What was her average mark?...
23. If a map is drawn to a scale of 100 miles to $\frac{1}{4}$ inch, what distance will be represented by a line 1$\frac{3}{4}$ inches long?  

24. My father is paid twice a month. If each check is $75, how much does he get a year? 

25. Sol earns 40¢ an hour. Yesterday he worked from 8:30 to 11:00 and from 2:30 to 3:30. How much did he earn? 

26. Our class bought a box of 2 dozen candy bars for 95¢ and sold the bars for 5¢ each. How much did we make on a box? 

27. How much material should Louise buy for 6 towels, each of which is to be $\frac{7}{8}$ yard long? 

28. Susan has 3$\frac{1}{2}$ yards of ribbon that she wants to cut into $\frac{1}{4}$-yard lengths. How many lengths can she cut? 

29. Ruth needs 200 ice-cream cones for the church fair. If a quart of ice cream fills 10 cones, how many gallons of ice cream should she order? 

30. Bertha has a 6-yard piece of lace. She gave 1$\frac{1}{2}$ yards to her sister for a dress and used $\frac{3}{4}$ of a yard on her own dress. How much did she have left? 

31. The speedometer showed 2014.9 miles when we started on our trip and 2030.8 when we finished. How many miles did we travel? 

32. On different days last week, Rosa's sister worked 5$\frac{1}{2}$ hours, 8 hours, and 6$\frac{3}{4}$ hours. If she was paid 48¢ an hour, how much did she receive for her work last week? 

33. Our motorboat ran a distance of 19.8 miles in 1.2 hours. Find its rate of speed per hour.

STOP!
TEST 5. ENGLISH: PART I—LANGUAGE USAGE

Directions. In each sentence one word is left out for each blank line. Think of the one word that should be written on the blank line to make the sentence correct and sensible. Write the word in the parentheses after the sentence. Read the whole sentence before you write the word. (Sometimes the first letter of the word you are to use is given.) Read the sentence again after you have written the word, to be sure that it is correct and sensible.

Examples. John says he d——- like to lose a game. . . . . (d) 1
Mary hasn't——- more paper left for her lessons. ( )

Please l—— me go,” said the little boy. . . . . . . (l) 1
Tom cannot feed h——-self, although he is five years old. (h) 2
Allen c—— home from school early today,” said his other, “because he wasn’t feeling well.” . . . . (c) 3
Last week my fifth-grade boys d——- very well on their st . . . . . . . . (d) 4
I was in the tower of a skyscraper yesterday. I s——- the people in the street. They looked very small. . . . . (s) 5
I was alone. There weren't——- other boys in the room. ( ) 6
The flower smells sw——- . . . . . . . . (sw) 7
Other said to Blanche, "I br——- you a very nice present." (br) 8
When we have our picture taken, you will s——- in the air and I shall stand behind you. . . . . . . (s) 9
Do you know how many letters w——- in the box today? (w) 10
I saw you with Tom again yesterday. I always see h——- you together. . . . . . . (h) 11
I couldn’t go with us because he wasn’t feeling——- . . . . ( ) 12
He is on the raft. See him jump——- the raft into the water. . . . . . . . . ( ) 13
I ran was here for a week, but he has——- back to the room. . . . . . . . . . . ( ) 14
We learn new things in school every day. Today Miss won——- us long division. . . . . . . . . . . ( ) 15
Albert likes ice cream, but he d——- care for candy . . . . . (d) 16
Other, I go to the movies when I have finished my work? . . . . . . . . . . . . . . . . (. ) 17
Where w——- scarcely any food left when they arrived . . . . . (w) 18
Iss and Ann would take better care of th——-selves if they looked in a mirror once in a while. . . . . . . . . . . . . . . . . (th) 19

[ 15 ] (Go right on to the next page.)
20. Mother came into the kitchen as Edith broke a dish. "How many dishes have you broken so far?" she asked.

21. If Dan had looked for the skate, he would have found it.

22. Tom bought the banana from a peddler.

23. "Do you think you will win the prize?"

24. "Does your mother ever drive downtown?"
   "Yes, she has driven downtown every day during the past week."

25. "Are you going to the party with Alice?"

26. If Dick hadn't thrown the ball away, we would still have been playing.

27. He was very pleased when his boss gave him a raise in pay.

28. The entire audience was interested in the speech.

29. I think there are easier problems than these.

30. Ted, Jim, and Tony were walking along a lonely road at night. "We aren't afraid," said Ted bravely, "are we?"

31. Fred wants us to go. It was he who invited us last week.

32. Mary had to divide the oranges equally among the six girls.

33. Betty said, "Claire can't run as fast as I can, even though she is taller than me."

34. As the game is over, I shall go home.

35. Every boy and every girl was listening to the radio.

36. Those skates are Edward's. They are mine.

37. Mother objects to me playing ball, but Father does not.

38. I don't think so small a child should cross the busy street alone.

39. "I have already chosen Agnes for my partner," said Mary.

40. I recognized John as soon as he came into the room.

41. The committee of three boys made its report, and we will vote on it.

42. With whom were you walking yesterday evening?

43. Neither Joe nor Tom is going to stay after school.

44. I was so tired that I lay down on the bed and fell asleep.

45. He told Dan, Ted, and I that we might go to the movies.

STOP!
PART II - PUNCTUATION AND CAPITALIZATION

Directions. In each of the following sentences put in the capital letters and the commas, periods, and other punctuation marks that have been left out. Do not change any punctuation that is already in any sentence. The punctuation has been put incorrectly in the sample given below.

Sample. Where was the ball? It was on the chair.

my books were on that table

The children stayed at Fred's until the party was over their mothers called to take them home.

Bob answered We ought to go together.

Ann did not go to the picnic with her friends she remained at home to finish her sewing.

Jane hurt herself her finger was badly cut.

The car stops here the bus stops at the next corner.

Must i go to Lincoln high school in the fall

Do you think that we shall arrive on time the train is ten minutes late now.

I wasn't planning to return until Labor day.

Does Carl want the candy or the fruit he prefers candy but likes fruit too.

While it is still sunny lets go for a swim.

Central park is about a mile from Mauds school.

Prof White in his hurry left his notes at home.

The materials needed are these a piece of paper, a tack, and a stick.

STOP!
TEST 6. LITERATURE

DIRECTIONS. After each question there are four answers, of which only one is correct. In the parentheses after each question put the number of the correct answer.

SAMPLE. Sleeping Beauty was awakened by a —
1. king 2. fairy 3. bear 4. prince..............................(2)

1. Little Boy Blue was told to —
1. blow his horn 2. mind his brother
3. chase the cows 4. waken the birds..............................(2)

2. In the nursery rhyme, “The cow jumped over the —”
1. sail 2. fence 3. moon 4. stool..............................(1)

3. The number of dwarfs caring for Snow White was —
1. four 2. five 3. seven 4. three..............................(3)

4. The glass slipper fitted —

5. “Sail on! sail on! sail on! and on!” refers to —

6. “America the Beautiful” chiefly expresses —
1. love of living 2. love of country 3. love of justice
4. appreciation of fruitfulness..............................(1)

7. “A house without books is like a room without windows” means —
1. books give the light of knowledge 2. books should be kept clean
3. everybody reads books 4. everybody needs fresh air..............................(4)

8. A poem usually contains —
1. 12 lines 2. birds 3. queer words 4. feeling or emotion..............................(1)

9. In “Rain in Summer” Longfellow shows how people —
1. hate the rain 2. are annoyed by rain 3. go inside when it rains
4. welcome the rain..............................(4)

10. When Rip Van Winkle returned from his long sleep, the people —
1. were delighted to see him 2. did not recognize him
3. slighted him 4. drove him away..............................(4)

11. “The Village Blacksmith” is a poem about a —
1. contented man 2. small man 3. cruel man 4. lazy man..............................(1)

12. The Ten Commandments were given to —

13. The story of Joseph and his brothers tells how Joseph —
1. sold his brothers as slaves 2. became the ruler of Egypt
3. put Pharaoh to death 4. bought grain from his father..............................(4)

14. The boy who worked in the circus was —

15. Buck, an Alaskan husky, was a —
1. horse 2. lumberjack 3. dog 4. polar bear..............................(3)

16. Alice’s adventures were caused by a —
1. dog 2. cat 3. rabbit 4. rat..............................(4)

[18] (Go right on to the next pa
Good Samaritan was — 1 one who helped another 2 an outlaw
3 Little John 4 the defender of the bridge

Today was a faithful servant of —
1 Tarzan 2 Huckleberry Finn 3 Robinson Crusoe 4 Robin Hood

John Greenleaf Whittier was —
1 a poet 2 a President 3 an actor 4 a general

Captain Miles Standish was a friend of —
1 Columbus 2 the Quakers 3 the Pilgrims 4 Sir Walter Raleigh

The story of “William Tell” is a story of —
1 Germany 2 France 3 Spain 4 Switzerland

“Daffodils” the poet writes of —
1 a single flower 2 a vase of flowers 3 a field of flowers 4 an artificial flower

Then Joan of Arc was captured by the English, she was —
1 hanged 2 electrocuted 3 shot 4 burned to death

He change that took place in Scrooge resulted from —
1 fright 2 a dream 3 his nephew’s pleadings 4 remorse

Robin Hood became an outlaw after killing a —
1 soldier 2 hunter 3 deer 4 king

Tim was a —
1 baby 2 cripple 3 fairy 4 dog

Mrs. Wiggs was —
1 cheerful 2 pessimistic 3 wealthy 4 sad

Euphune was the god of the —
1 moon 2 sun 3 stars 4 sea

I think that I shall never see a poem lovely as —
1 the lea 2 a tree 3 a bee 4 the sea

The King of the Golden River” teaches men —
1 farming 2 mining 3 charity 4 poverty

Son went in search of the —
1 Golden Apple 2 Golden Fleece 3 gold 4 Golden River

Orpheus was —
1 a builder 2 a soldier 3 a musician 4 an outlaw

Stories were written by —
1 Aesop 2 Longfellow 3 David 4 Aladdin

C. H. Harris wrote about the —
1 North 2 East 3 South 4 West

The theme of “Young Lochinvar” is —
1 patriotism 2 romance 3 religion 4 humor

“The Ransom of Red Chief” the boy enjoyed his —
1 home 2 fine clothes 3 school 4 kidnaping

In Flanders Fields” tells of the —
1 Civil War 2 Revolutionary War 3 World War I 4 French and Indian War

The Norse god of light and fire was —
1 Thor 2 Ceres 3 Sif 4 Balder

To keep Proserpine with him, Pluto gave her a —
1 golden apple 2 pony 3 necklace 4 pomegranate

Katrina’s parents were —
1 murdered 2 imprisoned 3 shot 4 exiled

(Go right on to the next page.)
41. Moti-Guj was —
   1 a horse  2 a dog  3 an Indian  4 an elephant.

42. Penrod was embarrassed in church by a —
   1 friend  2 beetle  3 dog  4 handkerchief.

**DIRECTIONS.** In the parentheses after each quotation below put the number of the title with which it is associated.

1. Old Ironsides
2. The Twenty-third Psalm
3. Nathan Hale
4. Paul Revere's Ride
5. The Arrow and the Song
6. The Landing of the Pilgrims
7. The Man Without a Country

43. “The Lord is my shepherd. I shall not want.”
44. “On the eighteenth of April in Seventy-five”
45. “It fell to earth, I knew not where.”
46. “I regret that I have but one life to give for my country.”

**DIRECTIONS.** Each description or incident in the second column tells something about a character or a story in the first column. In the parentheses after each item in the second column put the number of the character or story from the first column that it tells about.

1. Hiawatha
2. How They Brought the Good News from Ghent to Aix
3. Hans Brinker
4. Little Cosetté
5. An Incident of the French Camp
6. Sindbad the Sailor
7. Bruce and the Spider
8. Anne of Green Gables
9. He taught his people picture writing.
10. How a great race was won.
11. A girl dyed her red hair green.
13. A beautiful doll made the poor girl very happy.

**DIRECTIONS.** Each character in the second column is from a story or a poem in the first column. In the parentheses after each character in the second column put the number of the story or the poem in which it appears.

1. Early Cave Men
2. I'm Just Beginning to Fight
3. The Five Little Peppers
4. The Dutch Twins
5. The Bluebird
6. The Call of the Wild
7. Jason and the Golden Fleece
8. Kit
9. Sabre Tooth
10. John Paul Jones
11. Medea

STOP!
SAMPLE. America was discovered by —
1 Cortes 2 Balboa 3 Columbus 4 Cabot. .......................... ( )

after the Civil War the Negroes in the South were —
1 sent to the cities 2 kept from working on farms
3 forced to work in factories 4 free. ................................. ( ) 1

The Wright brothers built the first successful —
1 airplane 2 balloon 3 steel ship 4 dirigible. .......................... ( )

the most important institution in the early years of the New England settlements was the —
1 jail 2 church 3 library 4 distillery. .................................. ( )

You should decide on the candidate you vote for because —
1 of his political party 2 he gives jobs to your friends 3 his party has a good platform
4 his past record shows that he will be a good official. .................. ( ) 4

Community health depends most directly on —
1 a pure water supply 2 a high tax rate
3 good railroad transportation 4 good schools. .......................... ( ) 5

The most important Southern general in the Civil War was —
1 Beauregard 2 Early 3 Lee 4 Meade. ................................. ( )

An important result of the discovery of gold in California was the —
1 increase of slavery 2 war with Mexico 3 Panama Canal
4 increased population of California. .................................. ( ) 7

In a city, criminals are first dealt with by the —
1 Police 2 Legal Department 3 Probation Office 4 Courts. ....... ( ) 8

The first commercially successful steamboat was developed by —
1 Watt 2 Fulton 3 Cooper 4 Franklin. ............................... ( )

The purchase of Louisiana was important because —
1 it didn’t cost much 2 we bought it from France
3 it gave the United States complete control of the Mississippi Valley
4 it contained many Indians who wanted to trade furs for goods. ............... ( ) 10

The most important agricultural product of the South after 1800 was —
1 tobacco 2 sugar 3 rice 4 cotton. ................................. ( )

Texas revolted against — 1 France 2 England 3 Spain 4 Mexico. .................. ( ) 12

Western Europe became interested in exploration because —
1 the feudal system disappeared 2 many schools were opened
3 of a desire for new trade routes 4 the Church favored it. .................. ( ) 13

An incinerator is a — 1 contagious disease 2 method of sanitizing
3 truck for collecting garbage 4 machine for burning garbage. ............... ( ) 14

The first of these countries to explore the New World was —
1 Spain 2 England 3 France 4 Portugal. ............................... ( ) 15

The “ Forty-Niners” were — 1 settlers in Texas
2 men who fought for Oregon 3 a regiment in the Revolutionary War
4 seekers for gold in California. .................................. ( ) 16

[21] (Go right on to the next page.)
17. It was hard for the colonists to move west of the Appalachians because — 1 they were afraid of the Indians 2 there were no horses available 3 there were few places where they could cross the mountains 4 they were too poor to travel.
18. A famous warrior king of Israel was — 1 Alexander 2 David 3 Romulus 4 Leonidas.
20. The Puritans and the Quakers had difficulty about — 1 food 2 religion 3 land 4 Indians.
21. The chief cause of the poor condition of the South right after the Civil War was — 1 the destruction of its navy 2 the loss of lives and property in the war 3 that many people went North 4 that the states were not in the Union.
22. The handling of postal money orders is controlled by the — 1 Treasury Department 2 Department of the Interior 3 Department of Commerce 4 Post Office Department.
23. The last important battle of the Revolution was at — 1 Saratoga 2 Yorktown 3 Monmouth 4 Trenton.
24. The southeastern part of our country was explored by — 1 Coronado 2 De Soto 3 Balboa 4 Columbus.
25. As a result of the War of 1812 — 1 we gained much territory 2 Napoleon was defeated 3 we abandoned Texas temporarily 4 European countries learned to respect the United States.
26. Sound public opinion is the result chiefly of — 1 propaganda 2 good laws 3 freedom of speech and press 4 low taxes.
27. The Constitution provides that the Vice President of the United States shall be the — 1 Secretary of the Interior 2 President of the Senate 3 Chief Justice of the Supreme Court 4 Speaker of the House.
28. The Norsemen came originally from — 1 Italy 2 Russia 3 France 4 Scandinavia.
29. Immigrants are persons who — 1 refuse to become naturalized 2 lead migratory lives 3 move into a country 4 are deported.
30. Before Texas became part of the United States — 1 only Americans lived there 2 there were no Americans in it 3 many Americans had settled there 4 Americans had bought all the land.
31. A famous early American locomotive was built by — 1 Stephenson 2 Cooper 3 Fulton 4 Franklin.
32. As a result of Cabot's explorations — 1 Norsemen settled in Newfoundland 2 England claimed North America 3 England occupied Greenland 4 the Line of Demarcation was determined.
33. In southwestern United States can be found remains of colonization by men from — 1 France 2 England 3 Spain 4 Portugal.
34. Vasco da Gama set out to — 1 discover America 2 reach India 3 explore Africa 4 find gold.
Metropolitan: Inter. Compl.:  R

### Column A

1. Arnold  
2. André  
3. Hale  
4. Mary Dyer

### Column B

1. native citizen  
2. resident who is not a citizen  
3. naturalized citizen  
4. Socialist

### Column C

1. dishonest storekeeper who gives short weight should be reported to  
2. Law Department  
3. Bureau of Licenses  
4. Bureau of Standards and Measures  
5. Health Department

### Column D

1. Alien is a  
2. resident who is not a citizen  
3. naturalized citizen  
4. Socialist

### Column E

1. ie colonist who was executed as a spy early in the Revolutionary War  
2. colonist who was executed as a spy early in the Revolutionary War

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STOP!
Test 8. Social Studies: Geography

Directions. After each question there are four answers, of which one is correct. In the parentheses after each question put the number of the correct answer.

Sample. Which state has the largest population?
1 Pennsylvania 2 Ohio 3 New York 4 Illinois

1. Rich, level, or gently rolling land with plenty of rain will have many —
1 miners 2 trappers 3 farmers 4 factory workers

2. In desert travel serious dangers arise from —
1 sandstorms 2 monsoons 3 thunderstorms 4 wild camels

3. In tropical forests the houses often have roofs made of —
1 tin 2 leaves 3 slate 4 shingles

4. Wool comes from —
1 a plant 2 an animal 3 a tree 4 the ocean

5. The ocean is kept from flooding the Netherlands by means of —
1 canals 2 locks 3 dikes 4 irrigation

6. Which one of the following occupations is connected with the production of bread?
1 miller 2 waitress 3 butcher 4 ranchman

7. The chief food of the Lapps is —
1 wild berries 2 reindeer meat 3 apples 4 cereals

8. In China the most valuable of these four crops is —
1 ginger 2 poppy 3 tea 4 litchi nuts

9. In the tropical forests of the Amazon are found —
1 bears 2 beavers 3 deer 4 monkeys

10. The leading industry in the western part of Texas is —
1 cotton growing 2 cattle raising 3 mining 4 manufacturing

11. Which one of the following occupations is needed for our protection?
1 merchant 2 farmer 3 teacher 4 fireman

12. On most wall maps the edge toward the ceiling is —
1 south 2 east 3 north 4 west

13. An important seaport is —
1 San Francisco 2 Buffalo 3 Pittsburgh 4 Toledo

14. In the United States spring comes earliest in the —
1 south 2 north 3 northeast 4 northwest

15. "Dry farming" means — 1 farming in deserts 2 irrigation 3 truck gardening 4 raising crops that can withstand dry seasons
DIRECTIONS. Refer to the following map to answer questions 16–23.

Which one of the following letters shows where there is a seaport indicated on the map?
F I D B ..................................................(  ) 16
Which letter shows where there is a bay?
L E C A ..................................................(  ) 17
Which letter shows where there is a cape?
F H L G ..................................................(  ) 18
Which letter shows where there is a lake?
C G E J ..................................................(  ) 19
Which letter shows the western end of a railroad?
D B I F ..................................................(  ) 20
In which direction is city H from city I?
1 northeast 2 southeast 3 southwest 4 northwest.............(  ) 21
In which general direction does the river flow on which city F is located?
1 northeast 2 southeast 3 southwest 4 northwest.............(  ) 22
This is a map of —
1 California 2 Alaska 3 Florida 4 Labrador .....................(  ) 23

DIRECTIONS. In the parentheses after each question put the number of the correct answer.

Switzerland has no —
1 lakes 2 railroads 3 forests 4 seacoast .........................(  ) 24
The export of meat from Australia is made possible by —
1 refrigerator ships 2 refrigerator cars 3 the British navy 4 more laborers .................................................(  ) 25

(Go right on to the next page.)
16. The most profitable industry in the Rocky Mountain states is —
   1 mining  2 manufacturing  3 dude ranching  4 fur trading.

17. The most important tobacco-producing state is —
   1 Kentucky  2 Ohio  3 West Virginia  4 Connecticut.

18. Mountainous regions usually have, as a natural resource for power, —
   1 coal  2 fast streams  3 petroleum  4 peat.

19. The people produce for themselves almost everything they eat or wear in —
   1 New England  2 Italy  3 Central Africa  4 England.

20. The Pacific Northwest has excellent forests because of the large amount of —
   1 sunshine  2 rainfall  3 flat land  4 delta soil.

21. An important product of many German farms is —
   1 corn  2 mutton  3 rice  4 potatoes.

22. An important export from both Spain and Portugal is —
   1 tobacco  2 lumber  3 wine  4 cheese.

23. The principal racial element in Mexico is —
   1 Negro  2 British West Indian  3 white  4 American Indian.

24. The chief export from Chile is —
   1 wool  2 meat  3 nitrate  4 coal.

25. Fishing and merchant shipping are important occupations of the —
   1 Poles  2 Bulgarians  3 Belgians  4 Swedes.

26. Massachusetts secures cheap power for manufacturing from its resources of —
   1 coal  2 natural gas  3 water power  4 oil.

27. In what general direction does the Columbia River flow as it enters the Pacific? —
   1 east  2 west  3 north  4 south.

28. The making of cigars and cigarettes is most important in —
   1 China  2 Turkey  3 Belgium  4 Germany.

29. The state of Washington is noted for its —
   1 pears  2 oranges  3 apples  4 peaches.

30. New Jersey has many truck garden farms chiefly because of —
   1 the long growing season  2 abundant water supply  3 large canneries  4 great city markets near by.

31. Most of the people who live in Asia belong to the —
   1 white race  2 red race  3 brown race  4 yellow race.

32. France profits most from the exports of products from her —
   1 dairy farms  2 truck gardens  3 flower gardens  4 vineyards.

33. The western Lake Superior region has immense deposits of —
   1 asphalt  2 iron  3 petroleum  4 silver.

34. One of our principal imports from British India is —
   1 raw cotton  2 jute  3 petroleum  4 gold.
We import a great deal of —
1 wheat 2 lumber 3 sugar 4 machinery

One of the chief products of the Norwegian fisheries sent to the United States is canned — 1 salmon 2 sardines 3 tuna fish 4 oysters

A Mediterranean seaport of France is —
1 Paris 2 Bordeaux 3 Le Havre 4 Marseille

Most of the rivers in Mexico are — 1 short and not navigable 2 short and navigable 3 long and not navigable 4 long and navigable

The most productive oil fields of the U.S.S.R. are near — 1 Moscow 2 the White Sea 3 the Baltic Sea 4 the Caucasus Mountains

The greatest coffee port in the world is —
1 Ceylon 2 Mozambique 3 Santos 4 Havana

The climate of western Europe is influenced chiefly by —
1 its longitude 2 the mountains 3 an ocean current 4 winds from the Mediterranean

The most valuable resource of Iran and Iraq is —
1 petroleum 2 fish 3 lumber 4 gold

The rain in the South Central states is brought chiefly by winds from the — 1 north 2 south 3 east 4 west

In crossing from one time belt into another on a trip to the West, we must — 1 set our watches ahead one hour 2 set our watches ahead three hours 3 set our watches back one hour 4 not change our watches

An important island on the route from South Africa to India is —
1 Java 2 Cyprus 3 Madagascar 4 Jamaica

The development of Tibet is hindered by —
1 foreigners 2 difficulties of transportation 3 unhealthy climate 4 frequent earthquakes

A leading British export to Brazil and Argentina is —
1 coal 2 raw cotton 3 beef 4 hides

The most densely populated country of Europe is —
1 Belgium 2 Finland 3 France 4 Germany

STOP!
TEST 9. SCIENCE

DIRECTIONS. After each question there are four answers, only one of which is right. In the parentheses after each question put the number of the right answer.

SAMPLE. An animal with fur is the—
1. dog 2. robin 3. fish 4. turtle

1. A tadpole is a young—
1. salmon 2. frog 3. robin 4. snake

2. One grass-eating animal is the—
1. frog 2. bear 3. squirrel 4. deer

3. Birds help farmers by eating insects and—
1. fruits 2. acorns 3. weed seeds 4. cedar berries

4. Nuts are gathered in the—
1. fall 2. spring 3. summer 4. winter

5. The white band of stars across the night sky is called the—

6. Dandelion seeds are scattered by—
1. water 2. bees 3. wind 4. birds

7. The earth moves around the—
1. sun 2. moon 3. planets 4. stars

8. It is dangerous to touch an electric switch—
1. when it is windy 2. on a rainy day 3. with dry hands 4. with wet hands

9. The eel is a—
1. snake 2. porpoise 3. dolphin 4. fish

10. The raw material used in papermaking is—
1. sand 2. wood 3. silk 4. clay

11. In the lungs, the blood gains a supply of—
1. argon 2. nitrogen 3. carbon dioxide 4. oxygen

12. Minerals enter a plant through the—
1. leaves 2. stems 3. branches 4. root hairs

13. A raccoon’s tail has—
1. short white hair 2. no hair 3. scaly skin 4. light and dark rings

14. An animal that protects itself from its enemies by closing its shell is the—
1. lobster 2. crab 3. clam 4. shrimp

15. Silk fibers as compared with wool are—
1. flatter 2. smoother 3. knobbier 4. weaker

16. A hawk’s bill is fitted for—
1. twisting pine cones apart 2. sucking nectar 3. spearing fish 4. tearing meat

[28]
elbow is a —
1 muscle  2 joint  3 bone  4 gland ............................. ( ) 17

—

take in water  2 find food  3 keep plants cool  4 hold plants up ( ) 18

frog spends the winter — 1 frozen in ice
2 in deep water  3 buried in mud  4 under a stone ........................ ( ) 19

owers grow from—
1 buds  2 stems  3 branches  4 roots................................. ( ) 20

poles of a horseshoe magnet are — 1 at the two ends
2 in the center  3 at one end only  4 along the entire length ........................ ( ) 21

ass keeps soil from washing away because the —
1 snow melts more quickly  2 water runs off faster
3 roots hold soil  4 rain soaks in more slowly .......................... ( ) 22

hen an opossum sees danger, it — 1 gives off a bad smell
2 shoots its quills  3 pretends to be dead  4 digs a hole ........................ ( ) 23

sun rises late and sets early in —
1 spring  2 autumn  3 summer  4 winter ................................ ( ) 24

vent in the earth’s crust out of which melted rock flows is a —
1 geyser  2 volcano  3 glacier  4 fault ................................... ( ) 25

od is carried to all parts of the body by the —
1 nerves  2 stomach  3 blood  4 lungs......................................... ( ) 26

hottest stars are —
1 white  2 red  3 yellow  4 orange ........................................... ( ) 27

va is — 1 formed under water  2 volcanic rock
3 a precious gem  4 rock crystal............................................. ( ) 28

ker ants are unable to — 1 sleep when tired
2 store food  3 lay eggs  4 carry ant cows about .......................... ( ) 29

ightest star that can be seen from the earth is —
1 Castor  2 Aldebaran  3 Betelgeuse  4 Sirius............................... ( ) 30

umber of minutes later the moon rises each night is about —
1 75  2 50  3 100  4 125 ....................................................... ( ) 31

lectric telegraph was invented by —
1 Bell  2 Morse  3 Edison  4 Faraday....................................... ( ) 32

elp flowers to make seeds by carrying —
1 nectar  2 pollen  3 wax  4 honey......................................... ( ) 33

ooting star is a —
1 star  2 comet  3 meteor  4 planet......................................... ( ) 34

amed group of stars that appears to form a pattern in the sky is
led a —
1 constellation  2 nebula  3 solar system  4 galaxy ........................ ( ) 35

(\text{Go right on to the next page})
36. The records that plants and animals leave in rocks are —
   1 fossils  2 amber  3 dinosaurs  4 bones.

37. The motion of the earth that causes day and night is called —
   1 rotation  2 revolution  3 gravitation  4 momentum.

38. The oceans, in comparison with land, are heated by the sun — 1 at the same rate  2 more slowly  3 much more rapidly  4 more rapidly.

39. Black soils are rich in —
   1 sand  2 humus  3 clay  4 iron.

40. The sweet and starchy foods are —
   1 carbohydrates  2 proteins  3 fats  4 minerals.

41. Carbon dioxide is —
   1 an element  2 a compound  3 a salt  4 a base.

42. A toothed wheel which moves another toothed wheel is —
   1 a pulley  2 a lever  3 an axle  4 a gear.

43. The boiling point of pure water at sea level, on the Fahrenheit thermometer, is — 1 100°  2 200°  3 212°  4 209°.

44. A drone bee —
   1 sleeps in drone cells  2 mates with a queen
   3 lives through the winter  4 stings a worker to death.

45. A waste product when food is oxidized in the body's cells is —
   1 salt  2 calcium  3 oxygen  4 carbon dioxide.

46. It is possible to contract tuberculosis from — 1 too much sunshine
   2 unpasteurized milk  3 spoiled food  4 decayed teeth.

47. Water is —
   1 an emulsion  2 a mixture  3 a compound  4 an element.

48. Oxygen is carried from the lungs to all parts of the body by the —
   1 white corpuscles  2 red corpuscles
   3 blood plasma  4 fibrinogen.

49. Bacteria grow slowly in places that are —
   1 warm  2 cold  3 moist  4 dark.

50. Canned food sometimes spoils because of —
   1 bacteria  2 amoebas  3 viruses  4 molds.

51. Rocks that are found in layers are — 1 formed in dry places
   2 crystalline  3 sedimentary  4 volcanic.

52. Plants that live year after year are said to be —
   1 perennial  2 biennial  3 deciduous  4 evergreen.

STOP!
### Test 10. Spelling

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Stand. score:   Gr. equiv.   Age equiv.:   

[31]
**INDIVIDUAL PROFILE CHART**

**Metropolitan Achievement Tests: Intermediate Battery**

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* These two scales are independent. Only one should be used at one time.

In plotting this chart, put an X in the box above the scale which is to be used.

† An additional scale is provided here in order to make it possible to plot the chart in terms of norms other than those of age or grade.

The Profile Chart is designed to furnish a graphic picture of the achievement of an individual revealed by his test scores. In plotting the equivalents (grade, age, or other type), open booklet and lay it flat so that both the title page and the Profile Chart are in view. Plot the equivalent of each test score on the proper stave and join these points to make the profile.
Read this page. Do what it tells you to do.

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

Name: ___________________________________________ Age last birthday: ________ years

Birthday: ________ Month ________ Day

Teacher: ___________________________ Date: ________

Grade: ________ School: ___________________________ City: ___________________________

This is a test to see how well you can think. It contains questions of different kinds. Here is a sample question already answered correctly. Notice how the question is answered:

Sample: Which one of the five words below tells what an apple is?

1 flower, 2 tree, 3 vegetable, 4 fruit, 5 animal

The right answer, of course, is “fruit”; so the word “fruit” is underlined. And the word “fruit” is No. 4; so a figure 4 is placed in the parentheses at the end of the dotted line. This is the way you are to answer the questions.

Try this sample question yourself. Do not write the answer; just draw a line under it and then put its number in the parentheses:

Sample: Which one of the five things below is round?

1 a book, 2 a brick, 3 a ball, 4 a house, 5 a box

The answer, of course, is “a ball”; so you should have drawn a line under the words “a ball” and put a figure 3 in the parentheses. Try this one:

Sample: A foot is to a man and a paw is to a cat the same as a hoof is to a ______ what?

1 dog, 2 horse, 3 shoe, 4 blacksmith, 5 saddle

The answer, of course, is “horse”; so you should have drawn a line under the word “horse” and put a figure 2 in the parentheses. Try this one:

Sample: At four cents each, how many cents will 6 pencils cost?

The answer, of course, is 24, and there is nothing to underline; so just put the 24 in the parentheses.

If the answer to any question is a number or a letter, put the number or letter in the parentheses without underlining anything. Make all letters like printed capitals.

The test contains 75 questions. You are not expected to be able to answer all of them, but do the best you can. You will be allowed half an hour after the examiner tells you to begin. Try to get as many right as possible. Be careful not to go so fast that you make mistakes. Do not spend too much time on any one question. No questions about the test will be answered by the examiner after the test begins. Lay your pencil down.

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

1. Which one of the five things below does not belong with the others?
   1. peach, 2. banana, 3. orange, 4. baseball, 5. plum. (Do not write on this dot paper)

2. Which one of the five words below tells best what a hammer is?
   1. thing, 2. tool, 3. furniture, 4. weapon, 5. machine.

3. Which one of the five words below means the opposite of east?
   1. north, 2. pole, 3. west, 4. equator, 5. south.

4. The peel is to a banana and the husk is to an ear of corn the same as a shell is to what?
   1. an apple, 2. an egg, 3. juice, 4. a peach, 5. a hen.

5. If we feel sorry for the suffering of another, we have a feeling of what?
   1. ride, 2. pity, 3. contempt, 4. disdain, 5. engrossness.

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

7. Wool is to a sheep as feathers are to what?
   1. a pillow, 2. a rabbit, 3. a bird, 4. a goat, 5. a bed.

8. Which word means the opposite of accede?
   1. win, 2. decline, 3. fail, 4. accede, 5. try.

9. Which one of the five things below is most like these three: apple, peach, pear?
   1. seed, 2. tree, 3. plum, 4. juice, 5. peel.

10. Which one of the ten numbers below is the largest? (Tell by letter)
    A 645, B 968, C 4265, D 5061, E 418, F 7549, G 2835, H 9472, J 3286, K 8970.

11. Hat is to head as thimble is to what?
    1. finger, 2. needle, 3. thread, 4. hand, 5. sewing.

12. If the words below were rearranged to make a good sentence, with what letter would the last word of the sentence begin? (Make the letter like a printed capital)
    Usually are of made tables wood.

13. At 6 cents each, how many pencils can be bought for 48 cents?

14. Which statement tells best just what a gate is?
    1. a hole in a fence, 2. something to swing on, 3. It has hinges, 4. a door in a fence, 5. It opens and shuts.

15. A hand is to an arm the same as a foot is to what?
    1. leg, 2. toe, 3. finger, 4. wrist, 5. knee.

16. When a new kind of machine is thought of, it is usually called?
    1. a discovery, 2. an adoption, 3. a creation, 4. a novelty, 5. an invention.

17. One number is wrong in the following series. What should that number be?
    (Just write the correct number in the parentheses)
    5, 10, 15, 20, 25, 30, 35, 40, 45, 50.

18. What is the most important reason that automobiles have displaced horses and carriages?
    1. Horses were getting scarce, 2. Horses often run away, 3. Autos save time and “time is money,” 4. Autos are cheaper than carriages, 5. Autos cost less to repair than carriages.

19. Coal is to a locomotive as what is to an automobile?
    1. motorcycle, 2. smoke, 3. wheels, 4. gasoline, 5. horn.

20. Which one of the words below would come first in the dictionary?
    1. tramp, 2. paint, 3. razor, 4. quart, 5. grass.

21. One number is wrong in the following series. What should that number be?
    1, 7, 2, 7, 3, 7, 4, 7, 5, 7, 6, 7, 8, 7.

22. An automobile is to a wagon as a motorcycle is to what?
    1. walking, 2. horse, 3. buggy, 4. train, 5. bicycle.

23. A boy who often tells big stories about what he can do is said to?
    1. lie, 2. fake, 3. cheat, 4. joke, 5. brag.

24. Which one of the five words below means the opposite of difficult?
    1. hard, 2. quick, 3. soft, 4. easy, 5. common.

25. Which one of the five things below is most like these three: snake, cow, sparrow?
    1. tree, 2. doll, 3. pig, 4. feather, 5. skin.

26. A hospital is to the sick as what is to criminals?
    1. doctor, 2. asylum, 3. judge, 4. prison, 5. sentence.

Do not stop. Go on with the next page.
27. Which tells best just what a horse is? 
1 tail, 2 a large, four-legged animal, 3 a thing that works and eats, 4 a large, four-legged animal, 5 something to pull a wagon
28. Do what this mixed-up sentence tells you to do. 
letter, Write the first, this in A parentheses.
29. Which one of the words below would come first in the dictionary?
1 brave, 2 burst, 3 broke, 4 build, 5 breadth, 6 brown, 7 bunch, 8 bribe
30. Better is to good as worse is to what?
1 very good, 2 medium, 3 bad, 4 much worse, 5 best
31. Which tells best just what a lamb is?
1 an animal with wool, 2 a creature with four legs and a tail, 3 a lively small animal, 4 a young sheep, 5 a young animal that eats grass
32. If the words below were rearranged to make a good sentence, with what letter would the third word of the sentence begin? (Make the letter like a printed capital.) 
honey, bees, clever, gather, red, from
33. There is a saying, "A stitch in time saves nine." This means (?) 
1 A little sewing may save nine dollars, 2 It pays to attend to troubles before they get worse, 3 Work hard and save as much as you can, 4 You can save time by sewing
34. Grass is to cattle as bread is to what?
1 butter, 2 flour, 3 milk, 4 man, 5 horses
35. Which tells best just what a die is?
1 mistake, 2 a malicious false statement, 3 an accidental false statement, 4 an exaggeration, 5 a wrong answer
36. The son of my father's sister is my (?) 
1 brother, 2 nephew, 3 cousin, 4 uncle, 5 grandson
37. If George is taller than Frank, and Frank is taller than James, then George is (?) James 
1 taller than, 2 shorter than, 3 just as tall as, 4 cannot say which
38. A king is to a kingdom as a president is to what?
1 vice-president, 2 senate, 3 republic, 4 queen, 5 democrat
39. Count each 5 below that has a 7 next after it. Tell how many 5's you count.
7 5 3 5 7 2 3 7 5 6 7 2 5 7 3 4 7 7 5 2 0 7 5 7 8 3 7 2 5 1 7 9 6 5 7
40. An event which is sure to happen is said to be (?)  
1 probable, 2 certain, 3 doubtful, 4 possible, 5 delayed
41. Which one of the five things below is most like these three: president, admiral, general?  
1 ship, 2 army, 3 king, 4 republic, 5 soldier
42. Large is to object as loud is to what?  
1 soft, 2 small, 3 heavy, 4 weight, 5 sound
43. If the following words were arranged in order, with what letter would the middle word begin?  
Eight Tell Six Nine Seven
44. A quantity which grows smaller is said to (?) 
1 fade, 2 decrease, 3 dry up, 4 die, 5 sink
45. In a foreign language, boy = Kolo  
good boy = Kolo Daqk
The word that means good begins with what letter?
46. A captain is to a ship as a mayor is to what?  
1 state, 2 council, 3 city, 4 boss, 5 lawyer
47. One number is wrong in the following series. What should that number be?  
2, 3, 4, 3, 2, 3, 4, 3, 2, 4
48. If Harry is older than William and William is just as old as Charles, then Charles is (?) Harry  
1 older than, 2 younger than, 3 just as old as, 4 cannot say which
49. Do what this mixed-up sentence tells you to do.  
sentence, the letter Write first, this in
50. A revolver is to a man as what is to a bee?  
1 wings, 2 honey, 3 flying, 4 wax, 5 sting
51. If Paul is older than Herbert and Paul is younger than Robert, then Robert is (?) Herbert  
1 older than, 2 younger than, 3 just as old as, 4 cannot say which

Do not stop: Go on with the next page.
52. What is the most important reason that bright lights are placed in front of theaters? 
so that people can see where they are, 2 to attract attention and look inviting, 3 so that people can see the advertisements better, 4 Electricity is furnished to theaters cheaply, 
5 to help light up the street

53. If the words below were rearranged to make a good sentence, with what letter would the third word of the sentence begin? (Make the letter like a printed capital.)
boys birch the a canoe made bark

54. A person who wishes very much to succeed but fears he will fail is said to be (?)
1 earnest, 2 anxious, 3 industrious, 4 energetic, 5 cowardly

55. If the following words were arranged in order, with what letter would the middle word begin?
Week Year Second Day Month Minute

56. If a man has walked east from his home 7 blocks and then walked west 4 blocks, how many blocks is he from home?

57. In a foreign language, very hot = Soto Gran
very cold = Foss Gran
The word that means very begins with what letter?

58. Which one of the five things below is most like these three: cannonball, wire, penny?
1 dollar bill, 2 bone, 3 string, 4 pencil, 5 key

59. There is a saying, “A drowning man will grasp at straws.” This means (?)
1 A man will sink more easily than a straw. 2 Every one should learn to swim. 3 Desperate people cling to absurd hopes. 4 Those who cannot swim should stay on land.

60. Do what this mixed-up sentence tells you to do.
sum four Write three the one and of

61. An object or institution that will not perish or cease is said to be (?)
1 permanent, 2 stable, 3 stationary, 4 solid, 5 sound

62. In a foreign language, some food = Beko Prac
some milk = Klup Prac
some food and milk = Beko Otoh Klup Prac
The word that means and begins with what letter?

63. Which word means the opposite of pride?
1 sorrow, 2 humility, 3 miserable, 4 conceit, 5 proud

64. If the following words were arranged in order, with what letter would the middle word begin?
General Lieutenant Private Colonel Sergeant

65. There is a saying, “Make hay while the sun shines.” This means (?)
1 Hay made in cloudy weather is poor. 2 Haste makes waste. 3 Make the best of your opportunities. 4 Hay grows best in summer. 5 It is easier to work in the sun than in the shade.

66. Which tells best just what a foot is?
1 to wear a shoe and stocking on, 2 the part of the body on which an animal stands, 3 It has five toes and a heel, 4 Both feet are the same size, 5 Men have larger feet than women

67. One number is wrong in the following series. What should that number be?
1 2 4 8 12 32 64

68. Write the letter that follows the letter that comes next after K in the alphabet.

69. If the following words were arranged in order, with what letter would the middle word begin?
Youth Infancy Manhood Childhood Birth

70. There is a saying, “All is not gold that glitters.” This means (?)
1 Some gold has a dull finish. 2 Apparitions are often deceptive. 3 Diamonds sparkle more than gold. 4 Don’t wear cheap jewelry. 5 Some people like to make a show of wealth.

71. If I have a large box with 2 small boxes in it and 5 very small boxes in each small box, how many boxes are there in all?

72. If a boy can run 250 feet in 10 seconds, how many feet can he run in 1/2 of a second?

73. Which one of the following words would come last in the dictionary?
1 heart, 2 judge, 3 grass, 4 nerve, 5 horse, 6 north, 7 labor

74. One number is wrong in the following series. What should that number be?
1, 2 5 6 9 10 13 14 16 18

75. An agreement reached in which both sides yield somewhat in their demands is called (?)
1 a promise, 2 a compromise, 3 an understanding, 4 a deadlock, 5 an armistice
If you finish before the time is up, go back and make sure that every answer is right.