THE PSYCHOLOGY OF THE NEGRO

by

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SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS

in the

GRADUATE SCHOOL

of the

UNIVERSITY OF MISSOURI

1916

O.K.
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May 15, 1916

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INTRODUCTION

Though the term "race psychology" has been in use for some years, the amount of scientific evidence of the existence of racial differences in mentality is very small. In America, where so many races meet and contribute to the national life, there is a special need for accurate knowledge of any racial differences that may exist in mental capacity, in temperament, or in physical development. In the experimental study which is here reported, we have attempted to make some slight contribution to our knowledge of the physical development and mental capacity of negro children.

Without the advice of Dr. W. H. Pyle, and the cooperation of Mr. J. E. McPherson, superintendent of schools, Columbia, Missouri, and Mr. Herbert Pryor, superintendent of schools, Mexico, Missouri, Mr. H. L. Cox, principal of the Douglass school, and Miss Anna Finley, principal of the Jefferson school, this study would not have been possible.

I

PREVIOUS STUDIES

Because anthropology has found the physical measurements of the negro somewhat different from those of whites, and because sociology has found him in a somewhat less favorable social development, unwarranted generalizations regarding his inherent mental capacities have been made. To accept Bardin's* argument that the different physiology and anatomy of the negro brain will not allow him to assimilate the alien culture of the white race, or to conclude from Jordan's** personal experience that according to the degree of whiteness of a negro, judged by his skin color, the more closely will he approach the white in mental alertness, or to take for granted the inferiority of negroes because Phillips*** found a greater school retardation of negroes than of whites is to assume much without the support of experimental data. Until the relation of inherent mental capacities with physical and social measurements is scientifically established, no accurate comparisons of the mentality of negroes and whites can be derived from the sources of anthropology and sociology.

*J. Bardin- The Psychological Factor in the Southern Race Problem. Pop. Sci. Mo. 1913; 83, 368-374.

**H. E. Jordan- The Biological and Social Worth of the Mulatto. Pop. Sci. Mo. 1913; 83, 573-582.

***Byron A. Phillips- Retardation in the Elementary Schools of Philadelphia. Psychological Clinic, v.6, no.3, May 15, 1912, p.79.

The determination of the comparative scholastic efficiency of negroes and whites is the object of a study made by Marion J. Mayo.* Scholastic efficiency was determined by the statistical treatment of school marks received by negroes and whites who were working under uniform conditions in the mixed high schools of New York City, and who were subjected to identical tuition and previous school preparation.

One hundred and fifty negroes were compared with an equal number of whites selected at random from the same classes as those represented by the negroes. When, through lack of the necessary records, such as a selection of whites was impossible, white cases were selected at random from the current directory, care being taken to pair only those pupils who had been in school the same length of time. Several different nationalities, notably English, German, Irish, Italian, and Jewish, are represented in this study. The colored pupils represent "a closer selection from the entire population than do the whites at the ratio of about four to one. We do not know upon what basis this selection is made. It is probably upon a mixed basis of intellectual ability and social standing."

The average age of white pupils on entering high schools was 14 years, 5 months, and of the colored children 15 years, 2 months- a difference of nine months. The median age of whites

*Marion J. Mayo- The Mental Capacity of the American Negro. Archives of Psychology, no.28, November, 1913.

at entrance was 14 years, 6 months, and of negroes, 15 years, 1 month- a difference of seven months. The average deviation for whites was 9 months and for negroes was 15 months. In view of the compulsory education law, and of no probable reason for a temporary discontinuance of school life at the close of the grammar school period, except in accidental cases, retardation in the grades seems the only likely explanation of the more than one-half year's advance in age of the negroes over the whites.

The average time spent in school when the records were taken was for 149 colored children 4.5 terms and for the 149 white children 3.8 terms, which points to the conclusion that "for various reasons white pupils are more prone to quit the high school than are the colored."

"Relative retardation and persistence in school would seem to be characteristic of the high school colored group. -----According to the records obtained of a hundred pupils of each group having entered high school at any time, when 50 per cent. of the colored pupils are still in attendance, only 28 per cent. of the whites will remain."

As regards scholarship, with a passing mark of 60, the median mark in all subjects combined was for white pupils 66, and for colored pupils 62, a difference of 4 points, or 4 per cent. 29 per cent. of the colored pupils reach or surpass the median mark for white pupils and 73 per cent. of the white group reach the median mark of the colored group. The average deviation for the white group is 7, and for the negro group is

6.5. The median deviation probable error is 5.5 for the white group and 5 for the colored.

The colored pupils make relatively the poorest showing in English and the commercial branches, and relatively the best in modern languages and in mathematics, especially arithmetic and algebra. Ancient languages, sciences, and history fall between these in the order named.

The percentage of colored pupils reaching the median mark of the white pupils is as follows:

Subject	Per cent.
English-first term.....	22
English-all terms.....	24
Modern languages-first term.....	42
Modern languages-all terms.....	33
Mathematics-first term.....	46
Mathematics-all terms.....	32
Sciences-first term.....	39
Sciences-all terms.....	29
History-all terms.....	31
Ancient languages-all terms.....	27
Commercial branches-all terms.....	22
Arithmetic-first term.....	39
All subjects-all terms.....	29

The white pupils rank higher in every subject, but the numerical difference is not very great.

The total number of subjects pursued was 2,433 for the white group and 1,855 for the colored group. The percentage of subjects passed on first trial was 76 for the white group and 58 for the colored. "Interpreting these figures as a measure of relative scholastic efficiency, the efficiency of colored pupils is 76 per cent. of that of the whites; that is, the colored pupils are about $3/4$ as efficient as the whites in the pursuit of high school studies."

As a study of high school grades, this study has contributed something of value to the study of the negro. The greatest chance for error, other than the uncertainty always attendant upon a grading system, seems to lie in the fact that "the general impression among teachers is that colored pupils are less successful in their studies than are the whites." In most subjects of study, the variation between the white median and the negro median is but a few points; and this impression, current among the teachers, might easily account for such a difference.

The Binet-Simon tests as revised by Dr. H. H. Goddard were given by Alice C. Strong* to 225 white children and 123 colored children in the schools of Columbia, S. C. "No marked variation from the white children in manner of responding could be noted. -----The replies were usually couched in fewer words than those of the white children. There was less tendency to enter

*Josiah Morse- A Comparison of White and Colored Children by the Binet Scale of Intelligence. Pop. Sci. Mo. Jan. 1914. p75.
 *Alice C. Strong- Three Hundred-Fifty White and Colored Children Measured by the Binet-Simon Measuring Scale of Intell-

into conversation, and it was soon found that they were more at ease when reacting to the tests than when an attempt was made to talk to them about other things."

The groups were found to fall as follows:

	Colored Per cent.	White Per cent.
More than one year backward.....	29.4	10.2
Satisfactory.....	69.8	84.4
More than one year accelerated.....	0.8	5.3

"The picture tests gave the colored children considerable trouble, probably due to the difference in race esthetics. The tests relating to time and money, distinguishing between morning and afternoon, enumerating the months, counting stamps and making change, the drawing tests, both copying and reproducing from memory were all too difficult. The answers to the questions of comprehension, to the absurd statements and to the problems of various facts, were often absurd or senseless; the best replies, however, compare very favorably with those of the white children. The definitions were often not better than terms of use, and frequently stated in the language of a younger child."

"In general it may be said that the colored children excel in rote memory, e.g., in counting, repeating digits (but not one was able to repeat 26 syllables) naming words, making rhymes, and in time orientation. They are inferior to the whites,

however, in esthetic judgment, observation, reasoning, motor control, logical memory, use of words, resistance to suggestion, and in orientation or adjustment to the institutions and complexities of civilized society."

"To what extent these differences are due to difference in racial intellectual ability, and how much to environmental factors cannot be dogmatically stated."

The investigators think that they are certainly not due to school training as the colored school was in the city school system and its quality of teaching was good. "In order, therefore, to make the comparisons as just as possible, and at the same time ascertain the extent of the influence of environment, the white children were divided into two groups- city children and mill children. The economic, educational, and environmental conditions of the cotton-mill children are but little, if any, better than those of the colored children. The results of the comparison showed that the proportion of colored children who are satisfactory is less than that of the mill children, which in turn is less than that of the city children. Less than 6 per cent. of the city children are more than a year backward, 18 per cent. of the mill children, and 26 per cent. of the colored children. None of either the mill or colored children test more than one year above age, while 10 per cent. of the city children do."

"-----the colored children make a better showing in the first five grades than in the first seven, but

their inferiority to the whites existed throughout the school years, contrary to the widespread opinion that colored children are as well if not better endowed during the first school years. Again, according to the Binet scale, a larger number of white children are in a school grade below their mental ability than above, whereas the reverse is true of the colored children. A rough classification into three groups, according to color- dark, medium, light-showed that the darkest children are the more nearly normal, the lightest show the greatest variation, both above and below normal."

Morse concludes that "negro children from six to twelve and possibly fifteen years are mentally different, and also younger than the southern white children of corresponding ages, and that this condition is partially due, at least, to causes that are native or racial."

Byron A. Phillips*, finding in a former study that retardation in the Philadelphia schools increased in the different schools with the proportion of negro pupils in attendance, the greatest retardation being in colored schools, undertook a psychological study of the ^{matter} ~~case~~ and tested by the Binet scale 40 colored girls and 46 colored boys, totaling 86, and 75 white girls and 62 white boys, totaling 137. In pairing them off so that only those of comparable home conditions- excellent, good, fair, and poor- might be compared, the final comparison was made of 28 each of colored girls and white girls, and 29 each of colored boys and white boys. In his comparison, he used

*Byron A. Phillips- The Binet Tests Applied to Colored Children. Psy.. Clinic v.8 no.7 December 15-1914, p.190.

the actual individual retardation and acceleration in computing retardation and acceleration rather than grouping under year retardation ^{and acceleration} periods as is done in the South Carolina study and by Goddard. Using this system, the investigator found the retardation for the white group to be 42.1 per cent. and for the colored group 68.4 per cent. with colored boys 17.4 per cent. more retarded than white boys, colored girls 25 per cent. more than white girls; and the total rate of retardation of both groups was 26.3 per cent.

For the whole group, regardless of home conditions, Phillips gives the following percentages: 59 per cent. of the colored boys are retarded one year or more and 21 per cent. of the white boys. 50 per cent. of the colored girls are retarded one year or more against 29.3 per cent. of the white girls, making a total colored retardation of 54.6 per cent. and a total white retardation of 25.4 per cent. 2 per cent. of colored boys are accelerated, against 21.9 per cent. of white boys; 12.5 per cent. of colored girls against 18.6 per cent. of white girls. The total colored acceleration is 6.9 per cent. and the total white is 20.4 per cent.

The investigator concludes that, from pedagogical or psychological view points, the colored pupils are retarded from 20 to 30 per cent. more than the white pupils, that the white pupils are always greatly above them in acceleration, and that the colored pupils as a class are good in the memory tests and poor in those requiring judgment. They were generally slower in response. The testing of colored children took a much longer time than that of white. Their reaction time was greater; they were less animated.

The study reported by Josiah Morse and Alice C. Strong agrees with that made by Byron A. Phillips in finding the reaction time of negroes greater than that of whites, the negroes poor in tests requiring judgment and good in memory tests, except that the South Carolina study limits this excellence to rote memory and puts the negro down as poor in logical memory. Byron A. Phillips does not so differentiate.

Reducing Phillips' table so that it may in some degree be comparable with that of the South Carolina study, we have:

Philadelphia	Per Cent.	
	Negro	White
More than one year retarded.....	12.2	7.0
Satisfactory.....	87.7	82.4
Accelerated more than one year.....	00.0	12.7
South Carolina		
More than one year retarded.....	29.4	10.2
Satisfactory.....	69.8	84.4
Accelerated more than one year.....	0.8	5.3

In the comparison here, it must be kept in mind that the Philadelphia group is a select one, having the individuals of the two groups paired as to home conditions. It is also a somewhat smaller group than that of the South Carolina study.

In pairing individuals in regard to home conditions in the Philadelphia study, it would be of importance to know whether an excellent colored home was paired with an excellent white home on an absolute or a relative basis.

In measuring negroes and whites by the Binet tests, we obtain an interesting and a valuable comparison in terms of

that scale. The Binet scale, however, involves a large element of acquired knowledge of the type that sociology calls social heredity.

Because the six year old negro child has been taught to say evening instead of afternoon, confusion will arise when asked whether the time is afternoon or morning. Because the six year old white child answers correctly, he is scored on the question which has proved too difficult for the negro, but which might have been answered had it been asked in terms common to the negroes' habitual phraseology. Again, it is hardly just that the negro child should be marked mentally deficient because racial esthetics causes him to choose a standard of beauty other than that of the white. Though the Binet scale may point out differences between negroes and whites, it may not be the best means of measuring mental capacities of negroes as compared with whites, for whom the scale was made.

The fact that, in the South Carolina study, the negro children did not enter readily into conversation with the investigator and that they seemed more at ease when reacting, causes some doubt as to the comparative emotional conditions of the negro group and of the white group when before the investigator.

A comparison of age retardations and accelerations in South Carolina reveals the fact that, while negro children are always more retarded than white children and while the retardation tends to increase in both races from age to age, the difference between negro and white retardation tends to decrease in the more advanced ages. This would tend to show, as Morse points out, that the negro child is younger than the white child.

It also seems to show that he tends to develop faster, thus overcoming his handicap. If this is true, it would be interesting to learn whether this faster maturing would merely bring the negro to adulthood faster than the white, leaving him behind the adult white in mental age, or whether this discrepancy in mental age may not be bridged.

A substitution test was given by Bird T. Baldwin* to 37 white girls and 30 colored girls in the girls' division of the Pennsylvania reformatory. Fourteen other negro girls were too feeble mentally to perform the tests and three white girls failed to do 50 per cent. of the work correctly. Practically all of the superior negroes of the school were included in the test. We know nothing of the means of selecting the whites beyond the fact that the tests were given "between 2:45 and 4:30 o'clock to five classes of girls who had not been in school during the morning." The whites averaged 16.7 years of age, and the negroes 15.1 years, which gives the whites one year and a half's greater age.

The negroes were "much slower to warm up to the occasion," and were the first to drop back and lose interest. They were more difficult to arouse and could be stimulated only temporarily through flattery. Their work was more irregular than that of the white girls and more dependant upon moods. They were suspicious of the value of the task and carried it on with

*Bird T. Baldwin- The Learning of Delinquent Adolescent Girls as Shown by a Substitution Test. The Journal of Educational Psychology, v. iv., no. 6, June 1913, p. 317.

vacillating attention. While partially occupied with the task at hand, they were also occupied in making random movements, mumbling, grumbling, humming, and saying original and funny things. They paid less attention to errors, were less accurate, and did not, as a rule, put as much effort into the work as the whites. There was little rivalry among the negroes though it was occasionally encouraged.

The white girls averaged 72.3 substitutions and the negro girls 55.8. The negroes did 62.4 per cent. as much work as the white girls and made 245.3 per cent. as many errors. "The learning capacity of delinquent^{negro} girls differs quantitatively and qualitatively from that of the white girls."

The age difference between the two groups could not have accounted for the great divergency in efficiency between the two groups. This study is of value as showing the efficiency attained by negroes and whites under the given circumstances, but because of the fact that the negroes did not feel the importance of the work and were not interested to the same degree as the whites, it would be valuable to have further proof that the lack of interest was due to inability on the part of the negroes tested.

The object of a recent study at the University of Missouri* was to establish norms for the various mental abilities for negro school children and to compare these norms with similar norms established for white school children. Tests in logical memory, rote memory, substitution, word-building, cancellation, controlled

*C. E. Ragsdale- Psychology of the Negro- Thesis, 1914, University of Missouri.

association, free association, imagination, and permanent retention were given in the white schools of Columbia, Missouri, and in the colored schools of Columbia, Missouri; Mexico, and Moberly, Missouri. The following tables give the results of the investigation in terms of per cent. difference between the races and sexes:

Racial Differences

	<u>Boys</u>		<u>Girls</u>	
	<u>White</u>	<u>Negro</u>	<u>White</u>	<u>Negro</u>
Logical Memory Immediate	21.1		27.1	
Logical Memory Permanent	13.7		25.8	
Rote Memory	43.9		31.8	
Substitution	111.9		118.1	
Controlled Association	180.8		124.3	
Free Association	23.1		18.0	
Word-Building	98.2		127.3	
Cancellation	1.6			8.2

Sex Differences

	<u>White</u>		<u>Negro</u>	
	<u>Boys</u>	<u>Girls</u>	<u>Boys</u>	<u>Girls</u>
Logical Memory Immediate		7.7		2.6
Logical Memory Permanent		8.3	2.2	
Rote Memory		4.4		13.4
Substitution		15.9		13.6
Controlled Association		7.8		33.9
Free Association		10.6		15.4
Word-Building		13.1	4.1	
Cancellation		14.1		25.4

In the inkblot test, whites and negroes, boys and girls, were practically equal, the white boys averaging 6.3, negro boys 6.6, white girls 7.0, negro girls 6.9.

The negroes and whites are then more nearly equal in the inkblot and cancellation tests, and the greatest inequality is found in controlled association, substitution, and word-

building. The negroes have a much better memory for concrete than for abstract words, but are inferior to the whites in both.

In the sixth grades of the Douglass School (colored) and of the Jefferson School (white) both of Columbia, Missouri, two substitution learning experiments were given for four practice periods. The following table shows the per cent. gain between the tests:

BOYS

Per Cent. gain from practice	Digit-Symbol		Symbol-Digit	
	White	Negro	White	Negro
1-2	23.6	51.0	3.1	35.0
2-3	0.7	3.7	34.3	22.8
3-4	7.4	27.2	32.6	19.0
Av.	10.6	27.3	20.0	25.6
1-4	33.8	99.3	83.7	97.1

GIRLS

	White	Negro	White	Negro
1-2	30.9	61.5	26.2	29.7
2-3	12.2	-1.5	18.3	22.3
3-4	17.3	22.5	18.8	16.5
Av.	20.1	27.6	21.1	22.8
1-4	72.3	95.1	76.9	84.8

The table shows that the percentage improvement for negroes is much greater than for whites. This seems to point to the conclusion that the whites learn more rapidly than the negroes and approach the limit of their improvement more rapidly than do the negroes.

A classification into groups coming from good homes and from poor homes was made of the pupils of a white sixth grade and of all the pupils of the Douglass School (colored), and the efficiencies of the groups were then compared. "When the class of negroes having the best environmental conditions is chosen,

the negro boys have about four-fifths as great mental ability as the average of the white boys, and the negro girls have about three-fourths as great mental ability as the average of the white girls. Difference in social position has the greatest effect on tests requiring quickness in learning, quickness in making associations where specific associations are required, both immediate and permanent memory for ideas, and constructive imagination. Among negro children of the better social class, the tendency to approach the mental ability of the white children with increasing age is more marked."

A study of muscular speed and of muscular strength was made in the Douglass School (colored) and the Jefferson School (white) of Columbia, Missouri with the result that but slight difference was found between white boys and black boys in either strength or speed, though negro boys were found to be somewhat more ambidexterous ⁱⁿ speed. After ten years of age, negro girls tended to become stronger than white girls, and white girls to have a higher tapping rate than negro girls. The negro girls were slightly more ambidexterous in both strength and tapping. The negroes, both boys and girls, were slightly more variable, the reverse of which is true in the mental tests.

"In general, the average of the negroes has about two-thirds or less mental ability than the average of the whites. -----the negro girls approach the white girls in mental ability a little more closely than the negro boys approach the white boys. Negro boys and negro girls are farther apart in mental ability than white boys and girls, and in both races the girls are superior.

With an increasing age there is a tendency for the difference between whites and negroes to become less, the tendency is more marked with boys than with girls. About one-fifth of the negroes are equal or superior to the average of the whites and about three-fourths of the whites are equal or superior to the average of the negroes."

"In tests requiring quickness of learning and forming new associations, quickness in forming old associations, where an association of specific kind and not just any association is required, and in tests of constructive literary imagination or the ability to combine seemingly unrelated and contradictory impressions into a connected and meaningful whole, the negroes are less than half as successful as the whites."

Among other things of value that this study reveals, it will be noticed that the same tendency to diminish with age the difference between negroes and whites is found here in the use of mental tests as was found in the Binet study of South Carolina negroes.

II

GROWTH IN POWER TO FORM SENSORY-MOTOR COORDINATIONSPart I. The Development with Age of the Learning Capacity of Negro Children.

The object of this study was to determine the quickness and accuracy with which negro and white school children form sensory-motor coordinations.

To accomplish this purpose, apparatus devised by Dr. W. H. Pyle was used. A diagram on the following page shows something of the construction of the apparatus. In the box (a) at the left are 24 big and 24 little marbles; in the middle box (b) within the four partitioned areas 1, 2, 3, and 4 are 12 red, 12 blue, 12 mixed, and 12 black marbles; in the box at the right (c5) are 48 cards, each one of which calls for two marbles--one from the left box (a) and one from the middle box (b). The subject sits before the table, draws a card from (c5), drops it into (c6), takes the two marbles called for by the card from boxes (a) and (b)--one marble in each hand--and disposes of them in the holes in the top of the table. Little marbles go in the hole (d) to the left; big marbles go in the second hole from the left (e); black marbles go in the hole (g) close to the subject; red, blue, and mixed marbles go in the hole (b) close to the middle box. If a red marble is called for by the card, the subject is to press down on the left pedal (h) under the table with the left foot; if a mixed marble is called for, the subject is to press down the right pedal (i) with the right foot. Black marbles put into hole (g) will be delivered into box (j); red marbles put into hole (f) with the pressure of the left pedal (h) will be delivered into box (k);

LEARNING APPARATUS

mixed marbles put into hole (f) with the pressure of the right pedal (i) will be delivered into box (l); blue marbles put into hole (f) will be delivered into box (m); big marbles and little marbles put into holes (e) and (d) respectively will be delivered into a partitioned box which is situated just under the holes. Any deviation in the process will cause the marble dropped to be delivered into some compartment other than its proper one. Finding a marble out of place when the test is finished constitutes an error. Speed and accuracy are the measures of efficiency in the performance.

No previous training other than the ability to read six simple words--Big, Little, Blue, Black, Red, and Mixed,--is necessary. The test involves the reaction to a new situation; the grasping of many details; a large element of memory, attention, and concentration; the ability to keep many operations going at once; the elimination of unnecessary movements; and the building up of a new set of habits.

The tests were given to 106 negro girls and 71 negro boys of the Douglass School (negro--seven grade elementary school and three year high school) and 112 white girls, and 76 white boys of the Jefferson School (white--seven grade elementary school). No child under the fourth grade was tested. This selection should give a negro group somewhat older than the white group and a negro group that would contain a greater proportion of superior thirteen, fourteen, and fifteen year old students in the high school group. The superior thirteen, fourteen, and fifteen year old children of the white group would

also be in high school and no white high school students were tested.

The method adopted was such that each individual understood thoroughly what was expected of him before he began work. Each subject was given minute instructions, was allowed to watch two other subjects perform, and was allowed to dispose of one marble of each kind to make sure that the instructions were properly understood. The subject was encouraged to ask questions and answers were given even as to the construction of the apparatus. The importance of both speed and accuracy was emphasized. Two trials at disposing of the marbles were given to each subject and the record in time, errors, and marbles correctly placed per minute was recorded. The two tests for each individual took from fifteen to twenty-five minutes according to the quickness with which the individual comprehended the nature of the test and the rapidity with which he executed it.

The conditions under which the work was carried on were very satisfactory. In each school a separate room was given over to the work and the interest and co-operation of the teachers induced an excellent attitude toward the test. In arousing the interest and efforts of the subjects, the test was decidedly successful. Several subjects expressed their desire to own a similar piece of apparatus and examined the table for the purpose of constructing one. At noon, it was not uncommon for pupils to return and ask to be allowed to do the experiment again. There was no undue nervousness on the part of the subjects except in the case of a few of the negro girls of the high school

DISTRIBUTION CURVES

Number

40

35

30

25

20

15

10

5

1

Solid Black-Negro Boys
Broken Black-Negro Girls

Solid Red-White Boys
Broken Red-White Girls

Trial II

40

35

30

25

20

15

10

5

1

Trial I

PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

Marbles 7-8
per minute

9-10 11-12 13-14 15-16 17-18 19-20 21-22 23-24 25-26 27-28 29-30

group who were the first to be tested.

The accompanying distribution curves show the distribution of 121 negroes and 121 whites according to their ability to build up sensory-motor co-ordination as revealed by the test described. No negro or white who could be matched in age and sex was omitted from the comparison, and no high school student was included.

The distribution curves show that the overlapping is not considerable. In fact but 50.4% of the areas of the distribution curves are mutually inclusive on the first trial and but 56.1% on the second trial. That is to say that while the two groups are the same in age and sex, but 50.4% of the white and negro groups are equal on the first trial at building up sensory-motor co-ordinations, and but 56.1% are equal on the second trial. The remaining 49.6% and 43.9% of the negro group, on first and second trials respectively, fall below the negro and white groups that are equal, and the remaining 49.6% and 43.9% of the white, on first and second trials respectively, fall above.

The median performance for the negroes is from 13 to 14 marbles per minute on the first trial and from 15-16 marbles per minute on the second trial, and for the whites is from 17-18 marbles per minute on both first and second trials. The difference in the medians is not very great. Only 10 negroes or 8.2% however, reach or surpass the white median on first trial and only 25 negroes or 20.6% on second trial. On first trial 109 whites or 90.0% reach or surpass the negro median, and on second trial 104 whites or 85.9% reach or surpass the negro median.

It seems then that the whites far outclass the negroes in the rapidity and accuracy with which sensory-motor co-ordinations are formed. The difference between the races seems slightly less on the second performance than on the first as the overlapping is 5.7% greater on the second than on the first performance. This indicates that the negroes improved more from the first to the second trial than did the whites.

If we compare negroes and whites of the same age, we find the whites superior to the negroes at every age. This is shown in the following table.

Average number of marbles correctly placed per minute.

Trial I.

White Girls

Age	No. of cases	Av.No.Marbles	A.D.	%A.D.	P.E.	%P.E.
9	9	15.3	1.48	9.6	1.25	8.1
10	21	14.9	2.24	15.0	1.89	12.7
11	20	17.2	2.30	13.3	1.94	11.3
12	19	16.0	2.70	16.8	2.28	14.2
13	28	18.2	2.71	14.8	2.29	12.5
14	9	18.3	2.85	15.5	2.40	13.1
15	3	19.6	1.53	7.8	1.29	6.5
16	2	16.5	3.50	21.2	2.95	17.9
17	1	22.0				
Average from 9-16		17.0	2.25	13.2	1.90	11.1

Trial IIWhite Girls

Age	No. of Cases	Av. No. Marbles	A.D.	%A.D.	P.E.	%P.E.	% Improvement From Trial I-II
9	9	17.0	1.78	10.4	1.50	8.8	11.1
10	21	16.7	2.24	13.4	1.89	11.3	12.0
11	20	19.3	3.05	15.8	2.57	13.3	12.2
12	19	18.1	2.73	15.0	2.30	12.6	13.1
13	28	20.6	2.87	13.9	2.42	11.7	13.1
14	9	21.1	2.80	13.2	2.36	11.2	15.3
15	3	20.3	1.10	5.4	.92	4.6	3.5
16	2	20.0	2.00	10.0	1.69	8.4	21.2
17	1	24.0					9.0
Average from 9-16		19.01	2.36	12.4	1.99	11.4	11.7

Trial INegro Girls

Age	No. of Cases	Av. No. Marbles	A.D.	%A.D.	P.E.	%P.E.
9	5	12.4	1.68	13.5	1.42	11.4
10	9	11.4	2.04	17.9	1.72	15.1
11	15	12.4	1.89	15.2	1.59	12.8
12	9	12.7	1.58	12.4	1.33	10.5
13	18	13.3	2.32	17.4	1.96	14.7
14	18	13.8	2.37	17.1	2.00	14.5
15	16	14.4	1.83	12.7	1.54	10.7
16	9	15.1	2.56	16.9	2.16	14.3
17	6	13.3	2.56	18.2	2.16	16.2
18	1	15.0				
Average from 9-16		12.9	1.95	15.1	1.65	12.7

Trial IINegro Girls

Age	No. of Cases	Av. No. Marbles	A.D.	%A.D.	P.E.	%P.E.	% Improvement From Trial I-II
9	5	12.6	1.52	12.0	1.28	10.1	1.6
10	9	12.8	2.09	16.3	1.76	13.8	12.2
11	15	14.2	2.25	15.8	1.90	13.3	14.5
12	9	13.7	1.88	13.7	1.58	11.5	7.8
13	18	15.2	2.16	16.2	1.82	12.0	14.2
14	18	15.7	1.90	12.1	1.60	10.2	13.7
15	16	17.7	2.83	15.9	2.39	13.5	22.8
16	9	17.3	2.58	14.3	2.18	12.6	14.5
17	6	16.5	2.83	17.1	2.39	14.4	24.0
18	1	14.0					- 6.6
Average from 9-16		14.5	2.09	14.3	1.76	12.0	12.7

Trial IWhite Boys

Age	No. of Cases	Av. No. Marbles	A.D.	%A.D.	P.E.	%P.E.
9	3	16.0	2.66	16.6	2.24	14.0
10	8	14.1	.92	6.5	.77	5.5
11	15	16.1	2.42	15.0	2.04	12.7
12	18	16.0	2.50	15.6	2.11	13.2
13	14	17.5	1.85	10.5	1.56	8.9
14	9	15.3	2.87	18.7	2.42	15.8
15	7	18.7	2.70	14.4	2.28	12.2
16	1	20.0				
18	1	21.0				
9-16		16.24	2.27	13.9	1.91	11.8

Trial IIWhite Boys

Age	No. of Cases	Av. No. Marbles	A.D.	%A.D.	P.E.	%P.E.	% Improvement From Trial I-II
9	3	17.6	2.20	12.5	1.85	10.5	10.0
10	8	15.5	1.42	9.1	1.20	7.7	9.9
11	15	18.0	2.60	14.4	2.19	12.2	11.8
12	18	16.1	2.73	15.0	2.30	12.7	13.1
13	14	19.2	2.71	14.1	2.29	11.9	9.2
14	9	17.5	2.83	16.1	2.39	13.7	14.3
15	7	20.1	4.01	14.1	3.38	16.8	7.4
16	1	18.0					-10.0
18	1	25.0					19.0
Average from 9-16		18.0	2.64	13.6	2.23	12.3	11.1

Trial INegro Boys

Age	No. of Cases	Av. No. Marbles	A.D.	%A.D.	P.E.	%P.E.
9	2	13.5	1.50	11.1	1.26	9.3
10	5	11.2	1.44	12.8	1.21	10.8
11	8	12.8	1.37	10.7	1.15	9.0
12	12	11.9	1.95	16.3	1.65	13.8
13	18	13.5	1.38	10.2	1.16	8.6
14	7	12.8	1.26	9.8	1.06	8.3
15	7	15.2	2.54	16.7	2.14	14.1
16	9	16.1	2.87	17.8	2.44	15.1
17	1	15.0				
18	2	15.0	1.00	6.6	.84	5.6
Average from 9-16		13.0	1.63	12.5	1.39	10.6

EFFICIENCY CURVES

Trial I

DEPARTMENT OF ENGINEERING, UNIVERSITY OF MO.

Solid Black-Negro Boys
Broken Black-Negro Girls
Solid Red-White Boys
Broken Red-White Girls

Marbles per
Minute

PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

EFFICIENCY CURVES

Trial II

Superiority of
white boys over
negro boys

	Age	9	10	11	12	13	14	15
Trial I		18.5	25.8	25.7	34.4	29.8	19.5	23.0
Trial II		21.3	12.3	23.2	36.5	21.9	11.4	21.8

There seems to be no definite tendency for the differences between negroes and whites to diminish with advancing age as was found in the Binet study made by Alice C. Strong and in the study made by C. E. Ragsdale.

The average efficiencies of all negro children and of all white children from 9-16 years of age are shown below.

Average time in seconds

Trial	<u>Negroes</u>		<u>Whites</u>	
	<u>Boys</u>	<u>Girls</u>	<u>Boys</u>	<u>Girls</u>
I	428.3	414.4	339.6	326.7
II	376.1	380.3	312.8	298.8
% Improvement	12.2	8.2	7.9	8.5

Average Errors

Trial	<u>Negroes</u>		<u>Whites</u>	
	<u>Boys</u>	<u>Girls</u>	<u>Boys</u>	<u>Girls</u>
I	8.07	9.71	6.70	7.46
II	4.98	5.79	4.70	4.65
% Improvement	38.7	38.5	26.8	37.6

NET EFFICIENCIES

Marbles correctly placed per minute.

TRIAL	<u>Negroes</u>		<u>Whites</u>	
	<u>Boys</u>	<u>Girls</u>	<u>Boys</u>	<u>Girls</u>
I	13.00	12.91	16.24	17.07
II	14.90	14.55	18.00	19.01
% Improvement	14.6	12.7	11.1	11.7

Negroes are slower and somewhat more inaccurate than whites on both first and second trials. Negro boys are slower and more accurate on first trial and faster and more accurate on second trial than are negro girls. White girls are faster and less accurate on first trial and faster and more accurate on second trial than are white boys. The sex differences in net efficiency are comparatively small, white girls being 5.1% better on first trial than white boys and 5.5% better on second trial, and negro boys being 0.6% better than negro girls on first trial and 2.4% better on second trial. Ragsdale found the girls of both races superior to the boys.

The percentage superiority according to race is given below.

Per cent. Superiority

	<u>Boys</u>		<u>Girls</u>	
	<u>Negroes</u>	<u>Whites</u>	<u>Negroes</u>	<u>Whites</u>
I Time		20.7		21.1
II Time		16.8		21.4
I Errors		16.9		23.1
II Errors		4.8		19.5
Net Efficiency I		24.9		32.2
Net Efficiency II		20.8		30.6

Though it is generally thought by employers of negroes in domestic service and industrial occupations, that the negro is a comparatively fast and careless worker, the evidence here indicates that the negroes approach the whites more closely in accuracy than in speed. In administering the test, it was noticeable that both negroes and whites were much more interested in the number of mistakes made than in the time required for the performance although the instructions stressed both equally. It may be that the number of mistakes impressed the children as a more tangible measure than the time of performance.

The above table shows clearly that negro boys approach white boys more closely than negro girls approach white girls, which does not agree with the results of Ragsdale's study.

The efficiency of the negroes in this type of sensory-motor co-ordination is for the first trial about 71.5% that of the whites, and for the second trial about 74.3% that of the whites. It will be remembered that the Mayo study of scholarship in the New York schools found the negroes 76% as efficient as the whites and Ragsdale's study found them to be about two-thirds as efficient.

The efficiency table shows most clearly what has been shown in all the tables, namely that the percentage improvement for negroes is somewhat greater than for whites. This agrees with the results of Ragsdale's continued learning test, and suggests that the white is the quicker learner of the two, starting better than the negro and reaching his maximal efficiency earlier, and that though the negro may finally attain the same efficiency as the white, the efficiency must come through a slower process.

This would mean that the white can acquire a skill or complete a task of learning and turn his energies to another field while the negro must continue at the task first undertaken. Such an hereditary difference between the two races would have a great effect upon the development and the ultimate attainment of the two races.

Part II. The Ultimate Capacity of Negro Children in Complex Sensory-Motor Coordinations.

In view of acquiring further experimental evidence, on this point, three white and three negro boys, and three white and three negro girls were given this same test for building up sensory-motor co-ordinations. The experiment was continued for nineteen days with practice periods of twenty-five minutes each day.

The principal of the Douglass School was asked to select the negro children to be tested and no qualification was mentioned other than that they be about thirteen years of age, that they would be interested in the test, and that he considered the boys and girls comparable with each other. Thirteen years was the age selected as more of the children tested, both white and negro, were of that age. These negroes were matched with whites of the same age, of same sex, and of either absolute equality in the sensory-motor test or of relative equality in reference to their relation to their age and sex norms. Wherever possible a learner of the same type was chosen--that is if a negro's attainment had depended on speed, or on accuracy, or on both, an attempt was made to select a white of the same type. This was to discount variations due to individual differences as far as possible.

The following table shows the results of the matching.

Case	Subject	Grade	Home Conditions	Rank in Scholarship	Rank in previous test.	Absolute or relative match.
I	1 h.g.	7	Medium	best	best	A+
	1 w.g.	7	poor			
II	2 h.g.	7	good	best		R-
	2 w.g.	7	poor			
III	3 h.g.	1 h.s.	good		worst	A
	3 w.g.	5	poor			
IV	1 h.b.	1 h.s.	medium			R
	1 w.b.	7	medium			
V	2 h.b.	6	good	best	worst	A+
	2 w.b.	4	poor		worst	
VI	3 h.b.	6	good		worst	R+
	3 w.b.	5	medium			

*Note.--h-negro g-girl
 w-white b-boy

The numerals--couple and case numbers. + means slightly better than an absolute or a relative match on the basis of efficiency in the previous test. - means slightly worse than an absolute or a relative match on the basis of efficiency in the previous test. h.s.--high school.

The record of home conditions comes from the teachers' reports. The scholarship ranking also comes from their reports of the five best and the five worst pupils in each grade. The ranking of best and worst in the test comes from the selection of the best and worst 20% for each age.

The negro group has a greater school advancement and, relatively speaking, superior standing in scholarship, and better ranking in the previous tests, and relatively or perhaps actually better home conditions as some proportion of the school population of the Jefferson School are the children of shoe factory workers.

EFFICIENCY CURVES

Marbles per
Minute

DEPARTMENT OF ENGINEERING, UNIVERSITY OF MICHIGAN

Days

PLATE A - FOR R.V.E. 77 THE UNIVERSITY OF MICHIGAN STUDY, COLLEGE, ANN ARBOR, MICH.

DAILY PRACTICE CURVES

Marbles per Minute

Group Curves
Black-Negroes
Red-Whites

PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

A comparison of the individual pairs is made in the accompanying curves. With the exception of cases 1 and 6 (1bg-1wg and 3bb-3wb) the curves run close together. In case 1, the match was not perfect as 1 bg was very accurate in her two preliminary trials and 1 wg was faster and less accurate. In case 6, 3wb formed very bad habits of work and though seemingly interested and willing did not seem to know how to work at his fullest capacity.

In case 4, 1wb had a severe cut on his left thumb which interfered with his last day's work. The first fall in the curves of 1bg and 2bg can be accounted for by late hours on the preceeding night. Interruption caused the drop in the curves of 1wg and 2wb on the tenth practice.

Before practice days 3 and 17, a demonstration was given each individual. The effect seemed to be greater on the negroes than on the whites. The group curves show a more decided improvement for the negroes than for the whites on these practices.

Individual curves were made of the progress of learning during the day's work. That is practices 1,2,3,4,5,6, and 7 were average^d for all days on which a full seven practices or more were attained. The individual curves show that there are negroes and whites, slow and quick learners, represented by the same type of curve. A combination of curves into race group curves seem to show no striking differences.

*The demonstration consisted merely of the observer's going through the experiment once for the benefit of the subject.

The table from which these curves are made is given below.

Negroes	1	2	3	4	5	6	7	Practice per day.
1 bg	44.15	44.70	44.63	44.06	43.82	43.73	45.26	
2 bg	47.83	47.49	46.54	46.41	47.65	47.03	46.99	
3 bg	45.58	45.33	45.78	45.44	44.45	44.35	44.07	
1 bb	51.22	49.97	49.43	49.15	48.64	48.55	48.63	
2 bb	38.79	41.67	41.47	41.29	40.56	40.92	39.83	
3 bb	47.18	50.10	49.28	49.54	48.56	49.34	50.01	
average	45.79	46.64	46.18	45.98	45.61	45.65	45.79	

Whites	1	2	3	4	5	6	7	Practice per day
1wg	53.36	56.89	56.27	57.68	56.42	56.43	57.36	
2wg	48.10	48.04	47.41	47.43	47.36	46.82	46.43	
3wg	46.97	46.03	46.82	47.46	46.36	44.31	45.81	
1wb	46.52	48.29	48.25	48.05	47.96	47.87	48.23	
2wb	42.72	43.92	43.62	42.56	42.05	43.48	42.84	
3wb	41.12	41.55	41.26	41.15	40.98	40.39	39.66	
average	46.46	47.45	47.27	47.39	46.85	46.55	46.72	

Taking the group averages for the daily practices, the whites start 1.76 of a marble per minute better than the negroes and keep the lead until practice day 16, where they are .1 of a marble poorer than the negroes and practice 18, where there is a difference of 1.64 marbles in favor of the negroes. On the last day's practice the whites are .68 of a marble better than the negroes.

Unfortunately it was impossible to take the group to the

GROUP CURVES

(For Nineteen Days Practice)

INDIVIDUAL CURVES FOR NEGRO GROUP

Machete per minute

Solid Black, Higher Line--1 bb
 Solid Black, Lower Line---2 bb
 Broken Black ---3 bb
 Broken Red--1 bg
 Solid Green--2 bg
 Solid Red--3 bg
 Solid Yellow--group average of whites

14
 24
 34
 44
 54
 64
 74
 1
 2
 3
 4
 5
 6
 7
 8
 9
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 DEPARTMENT OF ENGINEERING, UNIVERSITY OF MICHIGAN
 PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

INDIVIDUAL CURVES FOR WHITE GROUP

Max. lbs per
minute

Solid Red, Higher Line-1 wg
Broken Red, -2 wg
Solid red, Lower Line-3 wg
Solid Black, Higher line-1 wb
Solid Black, Lower line -2 wb
Broken Black-3 wb
Solid Yellow-group average of
negroes.

14
Practice
days
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19

PLATE 1 - FOR SALE - THE UNIVERSITY CO. OF AMERICA, INC. NEW YORK, N.Y.

limit of its capacity; though external evidence seemed to indicate that such a limit was not distant.

Curves for the group averages of the nineteen practices are given with the group averages of best practices which do not change the results materially.

The curves for each individual of a group are given with the curve of the other racial group inserted. It is noticeable that the group curve for the negroes runs below those of four of the white subjects except at practice eighteen where it slightly exceeds the practice of four white subjects. The group curve for the whites for the greater part of its course falls below one and two of the individual curves for the negroes; and on practices 14, 16, 18, and 19, three of the individual curves fall above it.

Though this study is incomplete in that more practices are necessary to be conclusive even for these groups, which are small, still the final tendency toward a convergence of the groups is significant.

It must be remembered that the white group selected is an inferior one in comparison to the whole white group, being less advanced in school standing and relatively poorer in the previous tests in motor-sensory co-ordinations while the negro group, when similarly judged, is a superior one. The difference between the whole white group and the whole negro group is somewhat greater than the difference between the selected groups; so that, even

though the final attainment might be the same, the time taken to achieve it would be even greater than in this case.

In a learning test of this type, the limit of attainment would probably be a physiological limit dependent largely upon reaction time which previous experiments have proven does not differ greatly for negroes and for whites.

A comparison of the number of errors made by the selected negro group and the selected white group shows the whites to be more inaccurate.

Average number of errors per practice.

1 bg.	.26	1 wg	.85
2 bg	1.06	2 wg	1.43
3 bg	1.40	3 wg	1.17
1 bb	1.76	1 wb	1.21
2 bb	.74	2 wb	2.40
3 bb	1.17	3 wb	1.43
Average	1.06		1.42

The whites of these selected groups prove to be only 74.6 per cent. as accurate as the negroes. It will be remembered that 1 bg and 2 bb, the most accurate of the negro group, were the poorest of the negro group in net efficiency. This is the reverse of what is found in studies in individual differences--that is that the fastest workers are the most accurate workers. Accuracy seems to be the result of thorough habituation, which brings speed, or of the concentration of the attention on every step involved.

In the case of 1bg and 2bb the task had not been thoroughly habituated which was evident from the fact that the hand did not go unerringly to the right place, but a change was occasionally necessary. This caused a loss of speed. Concentrated attention resulted in accuracy. The school records of these two pupils shows conscientious work throughout.

This study of the learning capacity of negroes as compared with whites finds the power to form sensory-motor co-ordinations by negroes to be about 72.8% that of whites, the overlapping between the races to be about 53.2%, the percentage of negroes reaching or surpassing the white median to be 14.4% and the percentage of whites reaching or surpassing the negro median to be 87.9%, the superiority of the whites to range through all ages from 9-16 with no constant increase or decrease with age, the difference between white boys and negro boys to be less than between white girls and negro girls, the difference between negro boys and negro girls to be less than between white boys and white girls, the whites to be less superior to the negroes in accuracy than in speed, the improvement of the negro to be relatively greater than that of the white and the attainment of the negro to approach more slowly the limit of attainment of the white. No striking racial difference in the course of a day's practice was evident.

In conducting the experiments some slight difference in the attitude of the races was noticed. In both the large groups

and the small groups, the spirit of competition did not enter into the work of the negro group as much as into that of the white group. The negroes were more interested in their own individual records and their improvement than in their relation to others of the group. The white child had a greater tendency to look around to see what the observer and the two of his fellows who were present thought of his performance than did the negroes. When the negro thought he had made a mistake, he was much more liable than the white to stop and look around the side of the apparatus to make sure rather than to hold himself to the task.

The negroes showed a slightly greater tendency to work with but one hand than did the whites; also more negroes than whites crossed their hands in getting the marbles called for--that is the left hand would go to the right box for a marble which was to be disposed of in a hole at the right while the right hand went to the left box for a marble that was to be disposed of in a hole at the left. The negroes were more liable to feel for the marble instead of looking for it than were the whites. This might point to the prevalence of a different ideational type. Rather than dropping the marbles into the hole, the negroes tended to poke them in with their fingers, and wanted to look down through the holes. When the subject was preparing to start work, the negro observers seemed to want to help the subject more than did the white. The negroes were much more liable to say that they knew what to do when they could not repeat the instructions to the observer. Both races were able to repeat the instructions to the

observer, seemingly to understand the procedure thoroughly, but had much greater difficulty in putting the instructions into effect. That school children learn the theory of an operation so readily and have so much difficulty in its execution seems to show a need of greater practical application of theoretical knowledge.

III

SOCIAL CONSIDERATIONS

A rough classification of the negroes according to skin color gave three groups--dark, including black and dark brown negroes; medium, including light brown and yellow negroes; light, including those of very light skin and evidence of white blood in the eyes and hair.

The object in making the classification was to learn whether there were any noticeable group differences in home conditions, scholastic attainment, and ability to build up sensory-motor co-ordinations. If such differences were found to exist, they could not be attributed to admixture of races, except perhaps differences between the two extreme groups. The fact that there are full blooded negroes shading from black to light yellow, according to the part of Africa from which their ancestors came, makes any comparison whose basis is admixture of races impossible without knowing the ancestry of each negro classified. The best that can be expected from this study is to give some idea of the validity of a judgment based on the skin color of a negro, whether the difference that may exist is due to an admixture of white blood or to a lighter African strain.

74 negroes were classified as dark, 68 as medium, and 20 as light.

All negroes whom the teachers felt capable of judging were classified as coming from good, medium, or poor homes according to their standing in the negro community. 82 pupils were grouped

as coming from good homes, 83 from medium homes, and 45 from poor homes.

The teachers also selected the best five and the worst five scholars in each room. As the high school classes were small, the high school was treated as one unit. This made a report of 25 best and 25 worst scholars.

As all the pupils in one classification were not reported in the other classifications because of absences, new entries, and lack of knowledge of home conditions, the total numbers in the following comparisons will not always agree with the numbers reported above.

The table below gives the number of dark, medium, and light negroes coming from good, medium, and poor home conditions and the percentage of dark, medium, and light negroes found in good, medium, and poor home conditions.

<u>Home Conditions</u>	<u>DARK</u>		<u>MEDIUM</u>		<u>LIGHT</u>		<u>TOTAL</u>
	Number	%	Number	%	Number	%	Number
Good	20	27.0	39	57.3	12	60.0	71
Medium	36	48.6	25	36.7	3	15.0	64
Poor	18	24.1	4	5.8	5	25.0	27
Total Number	74		68		20		162

Medium and light negroes have about twice the probability of coming from good homes as do dark negroes. Dark and light negroes have about four times the probability of coming from poor homes as do medium negroes. The medium negroes have 94.0%

of their number coming from good and medium home conditions as compared with 75.6% of dark negroes and 76.0% of light negroes. The distribution of the dark negroes ^{is} ~~in~~ the most nearly normal distribution; the distribution of medium negroes is the most satisfactory from a social standpoint, and the distribution of the light negroes is the most irregular distribution. There are two suppositions that may account for the greater irregularity of the light group. Social prejudice may be such as to favor the advance of the light negro rather out of proportion to that of the darker, also, an admixture of superior white blood in distant generations might tend to produce superior home conditions while a recent admixture of degenerate white blood would produce poor home conditions.

A comparison of dark, medium, and light negroes according to scholastic attainment gives the following distribution in terms of the number of black, medium, and light negroes in the group of best and worst pupils and the percentages of the total number of black, medium, and light negroes represented among the best and worst pupils.

<u>Pupils</u>	<u>Black</u>		<u>Medium</u>		<u>Light</u>		<u>Total</u>
	Number	%	Number	%	Number	%	Number
Best	11	14.7	9	13.2	3	15.0	23
Worst	12	16.2	10	14.7	1	5.0	23
Total	23	30.9	19	27.9	4	20.0	

Dark, medium, and light negroes seem to have practically the same probability of being found among best students, and

dark and medium negroes have about three times the probability of being found among poorest students. 80% of light negroes, 72% of medium negroes, and 69% of dark negroes fall in the rank of medium scholars. This gives the dark negro a slightly greater representation in the extremes, which does not necessarily mean that the dark negroes are the most variable in the sense of going absolutely lower and absolutely higher in the range of distribution.

A comparison of the deviations from their age and sex norms of the dark, the medium, and the light groups in their ability to build up sensory-motor co-ordinations gives the following results for first and second trials.

Number of Cases	<u>Dark</u> 63	<u>Medium</u> 55	<u>Light</u> 13
% A.D. Trial I	15.1	15.9	15.9
% A.D. Trial II	12.2	13.4	18.6

The number of light negroes, 13, is too small to yield a reliable comparison. The difference in variability between the groups on both first and second trials is small. It is noticeable, however, that dark and medium negroes are slightly less variable on second trial than on first while light negroes are slightly more variable on second trial than on first. The differences are practically insignificant, however.

The results of an attempt to learn whether dark, medium, or light negroes build up sensory-motor co-ordinations most quickly are given below.

Percentage A. D. above or below the age norms.

	<u>Dark</u>	<u>Medium</u>	<u>Light</u>
Number	63	55	13
Trial I	-2.0	+1.4	+4.5
Trial II	+1.6	- .7	+5.4

As such small deviations above or below the average will
(i.e. are less than the probable error)
easily be lost in the probable error, there seems to be no
significance in skin color alone as an index to the ability of
negroes to build up such co-ordinations. A strict classification
of negroes according to the admixture of races, regardless or
regardful of skin color, might reveal correspondingly different
abilities but skin color alone will not yield a reliable
criterion.

Taking the best and the worst 20% of all the negroes
tested according to their ability to build up sensory-motor
co-ordinations, and dividing these upper and lower classes
according to color, the following percentages of dark, medium,
and light negroes are found to be represented in the best and the
worst groups.

	<u>Dark</u>	<u>Medium</u>	<u>Light</u>
Best	15.8	16.3	23.0
Worst	25.3	21.8	23.0

As only 22 of the best group and 31 of the worst group were
classified according to color, this comparison can have little
weight.

It seems to indicate, however, that the light group has a slightly greater probability of being represented in the best group in ability to build up sensory-motor co-ordinations.

The teachers of the Jefferson School, where the test for building up sensory-motor co-ordinations ~~was~~ given to white children, selected the best five and the worst five scholars in each room and classified their pupils as coming from good, medium, and poor home conditions. It is pertinent to remember that the Jefferson School has in its school population some proportion of the children of shoe factory workers.

Several methods were taken to determine the effect of good, medium, and poor home conditions on the pupils.

Method I.--Each child's record in the sensory-motor test was compared with its age, sex, and race norm, and its deviation above or below the norm was recorded. All deviations above or below were then grouped according to home conditions, the races being kept separate. The percentage deviation was then computed. The following tables give the results.

Per cent. deviation above or below the age and the sex norm of school children from different home conditions.

	<u>Trial I</u>		<u>Trial II</u>	
	<u>Negroes</u>	<u>Whites</u>	<u>Negroes</u>	<u>Whites</u>
Home Conditions	No. % Deviation	No. %	No. %	No. %
Good	71 +2.5	41 - .4	71 +1.1	41 -1.4
Medium	59 +1.1	74 +3.0	59 + .7	74 + .8
Poor	33 -6.6	58 -4.4	33 -3.1	58 -2.0

As the deviations are small and easily fall within the probable error, home conditions should be a very small factor in determining the achievement in this test.

Method II.--Of all the negroes and whites tested, the best 20% and the worst 20% were selected from the different ages for each sex and for each race. The groups thus selected were then divided according to home conditions. Twenty-one negro girls, and fourteen negro boys, and twenty-one white girls and fifteen white boys were the numbers approximating 20% of the whole numbers. For the negroes two of the best group and two of the worst group were not recorded as to home conditions, and for the whites six of the best group and five of the worst group were not recorded. These are not represented in the following tables which give the number falling into each class of home conditions and the per cent. of all children of each race from good, medium, and poor home conditions represented in the best and worst groups.

	<u>Negroes</u>				<u>Whites</u>			
	<u>Best</u>		<u>Worst</u>		<u>Best</u>		<u>Worst</u>	
Home Conditions	Number	%	Number	%	Number	%	Number	%
Good	10	14.0	11	15.6	5	12.1	5	12.1
Medium	14	23.1	12	20.3	18	24.4	13	17.5
Poor	8	24.2	10	30.3	7	12.0	13	22.4

For the negroes this method shows no great influence of home conditions. Though those coming from poor homes are about

twice as liable as those from good homes to fall into the worst group, they are also twice as liable to fall into the best group. The poor group has a greater representation in the extremes than has the good group, but such a state could hardly be said to be the result of poor home conditions. Both conditions are more liable to be attendant upon a third.

In considering the white group, it is noticeable that those coming from good home conditions are as liable to be represented in the best as in the worst class, while those coming from poor homes are about twice as liable to fall into the poor group as into the good group and their representation in the poor group is about twice as large as the representation of those coming from good home conditions. In this case it seems more than likely that poor home conditions is the result of poor hereditary stock[?] which also conditions poor ability. The poor standing in the test then is related to the same cause that has brought about poor home conditions and is not the result of poor home conditions.

The difference in this method of comparison between the distribution of the negroes and the whites coming from poor home conditions is probably due to the longer existence of the whites in their present status in society. In very young communities, rich and poor, families of good hereditary stock and of poor hereditary stock are found living in practically the same conditions. In an older community, the richer, the more industrious, the more intelligent, and the better naturally endowed can be distinguished from the poorer, the less industrious, the ignorant, and the poorly endowed in natural ability by the

conditions in which they live. The whites tested come from ancestors who have been living in such a community and have been subjected to such a sifting process. The negroes, lately emerged from slavery where poverty and ignorance were prevalent and where industry was not rewarded, have not been subjected to the same sifting process which leaves those most poorly endowed by heredity at the bottom. Another factor which would enter into the explanation of this difference is that the incentives which make the white do his best and so divide natural ability cannot be operative upon the negro in the present state of social prejudice. The range of achievement for the negro is so narrow and the height to which he can rise is so limited that incentives for best effort are lacking. With such lack of effort, it is about as probable that negroes of best natural endowment will be found in poor home conditions as those of worst natural endowment. At the present time, then, good or poor home conditions is not as good a criterion for judging the innate possibilities of a negro as it is of a white.

Method III.--Negro boys and negro girls in best home conditions were matched by age and sex with white boys and with white girls of poor home conditions. Where more than one match was possible, the rule for random selection was observed. In this comparison the negro homes of best rank and the white homes of worst rank should certainly not differ greatly in the excellence of their environment and the variation.

if present, would probably be in favor of the negro home. The sixteen white boys in worst home conditions averaged 16.25 marbles per minute on the first trial and 18.25 on the second. The sixteen negro boys in the best home conditions averaged 13.68 marbles per minute on the first trial and 15.81 on the second. The records for nineteen white girls in worst home conditions averaged 15.78 on the first trial and 18.94 on second trial, and the nineteen negro girls from best homes averaged 12.73 and 14.63 on first and second trials respectively. If credence can be given to a comparison of so few cases, it seems to point to the fact that environmental conditions need not be considered in judging quickness of learning which depends upon hereditary endowment and is not based on earlier acquired knowledge.

A comparison of the home conditions of the best five and the poorest five pupils, according to the teachers' reports, was made. The number of the best and the poorest pupils and the per cent. of those ranked in the different home conditions represented among best and poorest pupils is recorded below.

Home Conditions	<u>Negroes</u>				<u>Whites</u>			
	<u>Best Pupils</u>		<u>Worst Pupils</u>		<u>Best Pupils</u>		<u>Worst Pupils</u>	
	No.	%	No.	%	No.	%	No.	%
Good	19	26.7	8	11.2	13	31.7	1	2.4
Medium	14	23.7	15	25.4	9	12.1	6	8.1
Poor	6	18.1	13	39.3	3	5.1	12	21.0
Total No.	29		36		25		19	

EFFICIENCY CURVES

(BY GRADE)

EFFICIENCY CURVES

(BY GRADE)

Here the home conditions play a more vital part in determining what the child may achieve. For both races good home conditions go with good scholastic attainment and poor home conditions with poor scholastic attainment.

If the achievement of negroes and whites in the sensory-motor test is compared grade by grade, the efficiency curves of the negroes do not touch those of the whites in any grade. This is true in spite of the fact that the negroes are about a year older in each grade with the exception of the fifth grade where their ages are practically the same. It is noticeable that negro girls improve very little during the high school years. Before it could be said that development ceases at this stage, further evidence would be necessary.

In conclusion this study indicates that color is a poor criterion by which to judge the sensory-motor development or the scholastic standing of a negro; that lighter negroes are more liable to come from superior home conditions than darker; that home conditions have an influence on the scholastic attainment of both negroes and whites but little on their power to form sensory-motor co-ordinations, as a comparison of the negroes from the best homes and the whites from the worst homes leaves the negro still inferior to the white; that negroes are somewhat older grade per grade than are whites; that a comparison of grade efficiencies in the sensory-motor test where presumably the stage of development of negroes and whites is the same leaves the negro inferior to the white.

IV

PHYSICAL MEASUREMENTS

The object of this study was to determine whether there were any fundamental differences between negroes and whites in physical growth and development.

The Department of Educational Psychology supervised the measuring of 693 white girls and 621 white boys of the public schools of Columbia, Missouri, and 233 negro boys and 280 negro girls of the public schools of Mexico, Missouri, and Columbia, Missouri. The ages of the subjects ranged from five to twenty years. The number of cases at 5, 16, 17, 18, and 19 are too small to be of great value, but from 6 to 15 the number of children at each age is large enough to give fairly valid results.

Height.--The measurements of height were made by the use of a stadiometer and a micrometer, the heel height being subtracted from the total height. The curves on the following page show the increase in height for the ages 6 to 15.

The difference in size between the races is slight, but there is some variation in the crossing of the sexes. The negro boys and girls are practically equal in height until nine years of age when the growth curves separate and the girls are taller until after the fourteenth year. The white girls cross the white boys somewhat later, being taller from about twelve to sixteen years of age. The difference between the negro boys and girls is somewhat greater than between white boys and girls.

STANDING HEIGHT

Centimeters

SITTING HEIGHT

Centimeters

WEIGHT

Pounds

PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

DEPARTMENT OF ENGINEERING, UNIVERSITY OF MO.

LUNG CAPACITY

Cubic Centimeters

In sitting height, the curves for negroes are approximately the same as for standing height, the growth for girls crossing that of boys just before the ninth year and keeping the ascendancy until about the fifteenth year. For growth in sitting height, the curve for negro girls stops its rise at thirteen, a year earlier than in standing height. The growth curve for white girls rises above that for white boys between the eleventh and the twelfth years and keeps above until between the fifteenth and sixteenth years. The divergence between the curves for white boys and white girls from 11 to 15 years of age is slightly greater than in standing height which may signify a more rapid growth of the trunk than of the legs for girls during this period.

Weight.--Weight was determined by the use of anthropometric scales.

The growth curves for increased weight show the negroes heavier than whites. From between 9 and 10 to between 14 and 15, the negro girls are heavier than the negro boys; and from between 10 and 11 to about 15, white girls are heavier than white boys.

Lung Capacity.--Lung capacity was determined by the use of a wet spirometer.

The curves show that whites have a considerably larger lung capacity than have the negroes, whites of both sexes surpassing negroes of both sexes at all ages except between 14 and 15 where white girls fall below negro boys in their growth curve. Judging from the limited number of cases at 16, 17, and 18 years, white girls would not again exceed negro boys in lung capacity. White

VITAL INDEX

boys have greater lung capacity than white girls at every age, and the difference increases with age. Negro boys have greater lung capacity than negro girls after seven years of age except at ages 10 and 12 where the curves touch.

Vital Index.--In a comparison of the number of cubic centimeters lung capacity per pound ^{of} weight, whites have a considerably larger vital index than do negroes--The curves for the whites are above those for the negroes at every age from 6 to 16 years except at 12 and 14 where the vital index for white girls is smaller than that for negro boys. Negro boys have a greater vital index than negro girls at every age except 6 and 7, and white boys have a greater vital index than white girls at every age, except at nine years.

Muscular Speed.--By the use of a tapping board and a tapping stylus, records of muscular speed of the right and the left hands were taken. Some slight variation in the number of negroes tested brings the number of negro boys to 234 and of negro girls to 256, all coming from the public schools of Mexico, Missouri and the negro high school of Columbia, Missouri.

For speed of the right hand, whites are slightly better than negro boys and considerably better than negro girls, white girls slightly better than white boys and negro boys better than negro girls. After nine years of age, little crossing occurs.

The curves for left hand speed show the races to be practically equal, proving the negroes to be the more ambidexterous. The superiority of negro boys over negro girls is kept

GRIP RIGHT

kg.
65-

GRIP LEFT

Solid Black-Negro Boys
Broken Black-Negro Girls
Solid Red-White Boys
Broken Red-White Girls

age 5 6 7 8 9 10 11 12 13 14 15 16 17 18

from 8 to 16 years, and from 11 to 16 years white girls are superior to white boys.

Grip.--The strength of grip was determined by the use of the improved form of Smedley's dynamometer. Three trials were given alternately to each hand.

In grip of both right and left hands, white girls are noticeably weaker than white boys and negro boys and girls. White boys and negro girls are about equal until fourteen years of age where the curve for white boys rises above that for negro girls. At ages 7 and 11 the curve for strength of right hand for negro girls touches that for negro boys, and from 12 to 14 years negro girls are stronger than negro boys in right grip. Negro boys are stronger than white boys except from 12 to 14 and just after 15 years of age. There is little evidence of ambidexterity in grip.

In summarizing, this evidence indicates that the races are about the same in standing and in sitting height, that the negroes are considerably heavier, that the whites have a greater lung capacity and vital index, that the whites have a somewhat quicker muscular reaction with the right hand than the negroes and are practically the same as the negroes with the left hand, that the negroes are somewhat stronger in both right and left grips, and that the negroes are more ambidexterous in speed but not noticeably so in grip.

As the negroes are as tall and are heavier than the whites, their actually smaller lung capacity and vital index may play

an important part in their resistance to disease through a less thorough oxidation of the blood.

The development of the negro physically seems to be more rapid than that of the white as is indicated by the earlier age at which the increased rate of growth, due to the pubertal change, causes the growth curves for height, weight, and speed of negro girls to gain the ascendancy over those of negro boys and the accompanying earlier loss of the girls to the boys at the period of their increased growth than in the case of white boys and white girls. This earlier physical development would accompany the earlier mental development that is suggested in the Binet study of Alice C. Strong and in the work of C. E. Ragsdale where it is found that the difference between the races decreases with age.

V

SUMMARY

The study which has just been reported finds some striking racial differences between negroes and whites.

In building up sensory-motor co-ordinations, negroes were found to be 72.8% as efficient as whites and the overlapping between the races to be but 53.2%. Of the negroes 14.4% reached the white median while 87.9% of the whites reached the negro median. At every age from 9-16 the whites were superior to the negroes, white girls being more superior to negro girls than white boys to negro boys. Negro boys were slightly better than negro girls, and white girls were better than white boys. The difference between whites and negroes was greater in speed than in accuracy, and the improvement of the negro was greater relatively than that of the white, showing a possible tendency of the negro to approach more slowly the limit of attainment of the white.

Skin color, which has so long been the basis for judging the intelligence of a negro, does not seem to be a reliable criterion for judging his native ability to build up sensory-motor co-ordinations or his ability to attain scholastic success. The home conditions of negroes do not seem to have a vital effect on their native ability but do on their ability to achieve. As the group of negroes coming from the best home conditions are inferior to the group of whites coming from the worst home conditions, the environment of the negro child cannot be responsible for his inferior ability to build up sensory-motor co-ordinations.

Negroes and whites are practically equal in height; negroes are heavier and slightly stronger of grip; whites are slightly faster in reaction and of larger lung capacity and vital index; and negroes are more ambidexterous in speed. The physical development of the negro seems to be more rapid than that of the white.

APPENDIXA

Original data for sensory-motor tests given in the
Douglass and Jefferson Schools.

NEGRO GIRLS

<u>Trial I</u>		<u>Fourth Grade</u>			<u>Trial II</u>		
Name	Age	Time	Error	M.P.M.	Time	Error	M.P.M.
Marshall, Hattie	9-5	6-25	5	14	5-52	2	16
Meredith, Veoile	9-1	7-42	2	12	7-42	4	12
Briscoe, Louise	9-7	6-24	3	15	7-06	1	13
Madison, Mabel	10-3	9-38	8	9	7-54	8	11
Moore, Roberta	9-11	8-10	8	11	8-11	2	11
Carter, Alberta	10-11	9-04	12	9	8-40	5	10
Mitchell, Ida May	11-2	5-15	29	13	5-05	13	16
Hall, Maggie	10-6						
Barnett, Reba	11-8	10-08	5	9	7-30	5	12
Henderson, Laura	11-9	8-35	4	11	7-58	1	12
Jenkins, Florida	11-9	7-02	19	10	6-20	18	12
Marshall, Evelyn	12-0	7-12	10	12	7-10	0	13
McAfee, Elnora	11-8	8-03	7	11	7-40	13	11
Meredith, Lucile	11-10	9-04	4	10	6-57	5	13
Moore, Irene	11-7	6-15	9	14	5-37	8	16
Carter, Alta	13-0	5-17	7	17	4-40	10	18
Cosby, Emma	12-7	7-57	4	12	8-33	5	11
Mitchell, Kath.	12-9	7-00	11	12	6-35	3	14
Norman, Hettie	13-11	7-20	24	10	6-45	20	11
Blakey, Rita	13-11	7-24	24	10	7-16	27	9
Calloway, Martha	15-3	7-27	5	12	7-26	6	12

Fifth Grade

Carter, Frances	9-2	7-38	18	10	8-30	1	11
Hicks, Hazel	10-3	7-03	23	10	7-28	4	12
Homesley, Thelma	10-1	7-17	20	10	7-18	17	11
Robinson, Louise	10-8	6-41	5	14	5-37	0	17
Woods, Lula	11-3	7-36	11	11	7-18	8	12
Logan, May Emma	10-9	7-11	5	13	6-53	2	14
Jones, Evie	10-8	6-35	7	13	6-45	1	14
Moseley, Cannie	11-6						
Robinson, Ruth	11-11	6-51	5	13	5-14	0	18
Newson, Dolly	11-9	7-03	17	11	6-03	9	14
Brown, Ethel	12-3	6-45	6	13	6-40	0	14
Henderson, Fannie	13-5	7-31	11	11	6-53	7	13

NEGRO GIRLS

<u>Trial I</u>			<u>Fifth Grade</u>			<u>Trial II</u>	
Name	Age	Time	Error	M.P.M.	--Time	Error	M.P.M.
King, Beulah	13-0	6-30	13	13	6-05	7	15
Woods, Clara	14-0	6-25	8	14	5-57	2	16
Smith, Katherine	14-9	6-30	2	14	5-40	2	17
Robnett, Viola	15-6	7-14	16	11	5-32	3	17
Harvey, Ardella	14-10	6-37	4	14	5-34	5	16
Turner, Malissa	17-0	9-05	12	9	8-05	2	12

Sixth Grade

Chenault, Curtis	10-9	6-18	3	15	5-55	0	16
Samuels, Bernice	10-2	7-48	20	10	8-25	4	11
Stevenson, Ethel	11-2	5-57	0	16	5-41	5	16
LaForce, Naomi	12-2	9-00	20	8	8-35	19	9
Sheley, Sallie	12-0	6-06	17	13	6-29	2	14
Yancy, Blanche	13-2	7-13	5	13	7-23	1	13
Lewis, Amelia	13-0	6-48	0	14	6-36	1	14
Kelley, Pearley	13-7	8-49	11	10	6-22	3	15
Parker, Julia	14-3	6-16	4	15	5-35	2	17
Carter, Mabel	15-1	5-33	16	14	4-30	1	21
Winn, Ethel	15-6	6-26	2	15	5-58	2	16
Jackman, Geneva	15-1	6-51	0	14	5-28	1	17
Fisher, Luthern	16-6	5-45	18	14	5-20	1	18

Seventh Grade

Howard, Mary	11-1	6-47	4	13	5-52	7	16
Woods, Laura	11-6	6-04	1	16	5-40	4	16
Elliott, Stella	12-3	6-57	2	14	5-23	4	17
Williams, Edith	11-8	5-50	14	14	5-52	6	15
Crosswhite, E.	11-10	5-41	10	15	5-01	5	18
Banister, Gilliel	12-10	6-33	2	14	5-20	1	18
Johnson, Cassiel	12-11	5-02	12	17	5-33	17	14
Jones, Alice	13-2	6-02	1	16	5-38	1	17
Logan, Cecil	13-0	7-48	12	11	6-16	2	15
Robinson, Mild.	13-1	5-42	18	14	6-25	15	13
Mack, Logan	14-4	6-03	13	14	6-21	9	14
Berry, Emma	14-4	6-22	40	9	5-54	46	8
King, Willa May	13-9	5-02	0	19	4-08	3	23
Porter, Helen	14-10	5-48	7	15	5-04	2	19
Buckner, Eulalee	15-5	3-43	19	21	3-37	4	25
Jackman, Goldiel	14-11	6-53	24	10	6-34	4	14
Washington, Mary	15-5	5-26	5	17	4-22	5	21
Richardson, Mamie	15-5	7-45	2	12	5-49	1	16
Jackson, Irene	14-9	4-42	3	20	4-20	4	21
McFee, Maxime	14-7	8-18	8	11	6-06	5	15

NEGRO GIRLS

<u>Trial I</u>			<u>Seventh Grade</u>			<u>Trial II</u>	
Name	Age	Time	Error	M.P.M.	Time	Error	M.P.M.
Jones, Maggie	16-0	6-11	11	14	5-57	5	15
Robinson, Lida	15-7	8-00	4	12	6-48	2	14
Crosswhite, B.	16-8	3-59	4	23	3-29	3	27
Beverly, Georgial	16-7	6-08	27	11	5-20	22	14
Vincent, Lillian	17-11	6-16	2	15	5-35	4	16

First Year High School

White, Carrie	13-9	7-51	17	10	4-39	21	16
Washington, Ethel	13-10	5-35	10	15	4-22	8	20
Smith, Ethel	13-8	5-54	15	14	5-24	8	16
Samuels, Alberta	13-6	5-24	15	15	5-09	5	18
Kimbrough, D.	13-2	5-38	22	13	4-52	23	15
Hicks, Lucile	13-11	5-20	15	15	5-59	14	14
Sailes, Ethel	14-2	7-31	7	12	6-25	8	14
Samuels, Gladys	14-6	5-30	11	15	5-09	6	17
Smith, Helen	14-6	6-26	15	13	6-36	11	13
Douglass, Oventhal	15-4	6-13	6	14	6-02	7	15
Harris, Lillian	15-0	6-06	11	14	5-09	10	19
Roberts, Maggie	15-0	5-01	11	17	4-55	0	19
Sappington, Ruth	15-11	4-34	18	17	3-56	0	24
Rogers, Edna	16-2	5-24	4	17	5-24	6	17
Ferguson, Octavia	16-0	6-19	18	12	5-18	4	17
Warfield, Mary	17-10	3-49	35	16	3-53	18	20
Robinson, Azile	17-6	7-04	25	10	6-02	16	13

Second Year High School

Williams, Oralee	14-9	7-16	30	9	5-23	10	16
LaForce, Mayme	14-8	5-04	5	18	5-26	6	17
Johnson, Fanny M.	14-5	6-41	1	14	5-14	2	18
Clarkson, Dorothy	14-10	4-31	6	20	5-46	2	16
Burton, Maggie	14-0	6-48	19	11	5-51	6	15
Tibbs, Ethel	15-6	5-23	18	14	5-28	11	16
Williams, Emma	15-8	6-53	4	13	6-14	8	14
Moore, Bessie	18-2	4-49	23	15	5-38	16	14

Third Year High School

Gilmore, Pauline	15-8	6-12	11	14	5-09	2	18
Lewis, Biola	16-3	5-15	14	16	4-58	7	18
Smith, Ruby	16-8	5-26	27	13	5-40	25	12
Washington, B.	16-5	4-56	19	16	4-50	10	18
Roberts, Katie	17-3	5-40	15	14	5-25	0	18
Foster, Retha	17-2	4-35	22	16	4-14	11	20

WHITE GIRLS

<u>Trial I</u>		<u>Fourth Grade</u>			<u>Trail II</u>		
Name	Age	Time	Errors	M.P.M.	Time	Errors	M.P.M.
Bahm, Lula	9-6	5-39	15	14	5-13	11	16
Juliette, Gordon	9-11	5-22	6	17	5-25	9	16
Fay, Dorothy	9-6	6-48	6	13	5-10	9	17
Trimble, Winnie	9-10	5-05	14	16	4-55	17	16
Reed, Mary	9-10	5-55	5	15	5-18	7	17
McMillen, Cleo	9-5	7-11	6	13	7-07	4	13
Crosswhite, Vera	9-10	5-47	12	15	5-47	4	16
Brady, Martha	9-5	5-05	5	18	4-43	3	20
Wright, Evalina	9-5	5-35	3	17	4-02	6	22
McAllister, Cula	10-11	4-44	2	20	4-17	3	22
Payne, Irene	10-2	5-53	18	13	5-00	7	18
Alvis, Sybil	10-8	6-15	2	15	5-40	3	16
Hulen, Margeret	10-7	7-35	3	12	6-41	4	14
Melvin, Ella	10-2	6-25	23	11	5-00	8	18
Wyatt, Lucile	10-7	4-53	17	16	4-32	16	17
Whitesides, Elsie	10-3	4-23	4	21	4-07	4	22
Gooding, Ruby	10-10	8-11	4	11	6-42	5	14
Banta, Elruth	10-0	5-40	10	15	5-45	8	15
Finley, Virginia	10-8	5-26	21	14	5-44	9	15
Crocker, Olive	10-1	6-35	11	13	5-40	3	16
Whitesides, Maurine	10-0						
Woods, Florence	10-10	4-44	11	18	4-35	6	19
Whitesides, Exie	10-9	4-20	9	20	4-18	4	21
Nichols, Pearl	10-5	5-20	10	16	5-05	5	18
Boutwell, Buelah	10-0	5-51	9	15	5-41	13	15
Ballenger, Sigmund	10-4	5-54	11	14	5-45	2	16
Mockbee, Katie	11-10	4-37	6	19	4-08	2	23
Jones, Edith	11-9	5-10	8	17	4-18	0	22
Wigginton, Thelma	11-10	5-45	6	16	5-17	1	18
McCown, Martha	11-3	6-29	7	14	6-01	4	15
Jacobs, Janette	11-8	6-43	15	12	6-32	4	14
Noel, Gladys	12-11	7-25	6	12	6-34	2	14
Sims, Marion	12-11	5-55	6	15	5-02	1	19
Gravitt, Eunice	12-3	7-00	8	13	6-00	8	15
Gladwill, Mary	13-11	4-45	7	19	4-24	2	21
Fenton, Nellie	13-2	6-24	11	13	4-34	4	20

Fifth Grade

Grimes, Marian	10-5	6-42	6	13	7-41	4	12
Mote, Lola	10-4	6-21	5	14	5-58	0	16
Sapp, Ruby	10-10	5-56	8	15	5-42	3	16
Crews, Julia	10-10	6-38	20	11	6-33	19	12
Gollaher, Helen	10-7	5-43	4	16	4-53	3	19
Garrett, Fostina	11-10	7-45	0	12	6-35	0	15
Forbis, Alpha	11-8	5-32	4	17	5-30	3	17
Norvell, Fransis	11-4	4-10	12	20	4-01	2	23
Turner, Kathleen	11-3	6-18	3	15	7-05	9	10

White Girls

<u>Trial I</u>		<u>Fifth Grade</u>			<u>Trial II</u>			
Name	Age	Time	Errors	M.P.M.	Time	Errors	M.P.M.	
March, Goldie	11-3	4-30	11	19	4-28	6	20	
Mc Grath, Marjorie	11-10	4-28	3	21	3-55	3	24	
Roberts, Opal	11-6	5-06	10	17	4-46	5	19	
Finch, Fay	11-2	6-26	5	14	5-19	2	18	
Brown, Helen	11-3	4-25	2	21	3-44	1	25	
Jones, Willie	11-9	5-55	4	16	4-58	1	19	
Rugg, Elberta	12-7	6-42	0	14	6-34	5	14	
Williams, Martha	12-3	5-00	10	17	4-10	9	21	
Shearer, Gertrude	12-3	8-30	20	9	7-39	10	11	
Baker, Florence	12-1	4-38	6	20	4-22	5	21	
Denham, Maud	12-5	5-37	4	16	4-40	3	20	
Berry, Mary	12-11	5-42	8	15	5-18	0	18	
Holt, Myrtle	13-1	4-35	10	19	4-29	3	21	
Aubrecht, Amelia	13-2	4-56	5	18	5-13	4	18	
Vie, Betty	13-2	4-36	11	18	3-53	12	22	
Barnes, Rose	13-6	4-30	7	20	4-15	4	22	
Ficklin, Josephine	13-7	3-56	4	23	3-18	1	29	
Barker, Grace	13-0	5-12	4	18	5-41	10	15	
Lancaster, Naomi	13-2	8-01	3	12	6-39	2	14	
Blackmore, Ruby	13-7	6-23	7	14	5-15	4	18	
Dennis, Ollie	14-1	5-15	16	15	4-52	8	18	
Fisher, Agnes	14-11	4-29	1	21	4-10	2	23	

Sixth Grade

Long, Helen	11-10	5-45	6	16	5-12	3	18
Dodson, Nannie	11-8	4-27	10	19	4-40	4	20
Rowland, Ruth	11-8	5-04	6	18	4-11	1	23
Jordan, Marjorie	11-8	4-37	4	20	4-11	3	22
Brady, Mary	11-6	4-37	1	21	4-11	2	22
Reed, Louise	12-3	5-40	6	16	5-14	1	18
Sanker, Louise	12-11	7-32	2	12	5-54	7	15
Crosswhite, Mildred	12-2	5-10	3	18	4-40	1	20
Landrum, Gertrude	12-7	4-25	5	21	4-32	5	20
Rees, Edith	13-11	4-51	3	19	4-17	1	22
Garrett, Lucile	13-11	5-35	2	17	5-02	25	14
Jacobs, Lucy	13-5	6-37	5	14	6-05	1	16
Perrine, Mildred	13-8	6-35	6	14	5-16	10	16
Burnette, Ruth	13-4	5-22	6	17	4-45	1	20
Ray, Edith	13-2	5-05	4	18	4-42	1	20
Rose, Emma	13-3	4-53	2	19	4-32	0	21
Landrum, Vera	14-8	5-40	10	15	5-11	6	17
Bahm, Annie	14-4	5-25	8	16	4-54	2	19
Smith, Lucile	16-1	4-42	3	20	4-37	4	20

Seventh Grade

Russel, Florence	12-1	6-10	19	13	5-46	2	16
Prather, Marguerite	12-6	4-07	14	20	4-02	5	23

White Girls

<u>Trial I</u>	<u>Seventh Grade</u>			<u>Trial II</u>			
Name	Age	Time	Errors	M.P.M.	Time	Errors	M.P.M.
McClish, Mary	12-11	5-00	8	18	4-45	5	16
Ashloch, Gladys	12-4	3-48	19	20	3-30	11	24
Bihr, Mildred	12-11	5-21	2	18	4-52	2	19
Chalis, Helen	12-4	5-14	4	18	4-25	7	20
Winn, Roberta	13-4	4-00	3	23	4-00	1	24
Winn, Lena	13-10	3-34	4	26	3-07	3	30
McBride, Hulda	13-5	5-14	0	18	4-34	2	21
McNatt, Marie	13-5	4-18	1	22	4-15	4	22
Cottle, Buelah	13-10	3-53	5	26	3-40	2	26
Allton, Mabel	13-8	4-25	4	21	4-17	1	22
Banta, Virginia	13-4	4-36	7	19	4-07	2	23
Wolf, Grace	13-11	5-35	2	17	4-32	0	21
Summers, Marion	13-2	5-40	19	14	4-30	4	20
Brown, Ruth	13-5	4-47	5	20	4-13	1	23
Proctor, Julia	13-0	6-14	11	14	5-50	1	16
Morris, Loraine	14-7	4-38	5	20	4-13	5	22
Limrick, Hazel	14-0	4-13	6	20	5-03	6	18
Schaad, Luzelle	14-2	3-55	8	22	4-00	3	23
Burnette, Rachel	14-5	3-47	11	22	3-14	3	29
Bowles, Vera	14-6	5-12	16	15	4-15	6	21
Short, Ruby	15-6	4-03	10	22	4-12	11	20
Short, Ruth	15-6	5-11	3	18	5-03	2	19
Winn, Gladys	15-4	4-36	9	19	4-23	1	22
Holsna, Emma	16-5	6-43	8	13	4-47	1	20
Shaw, Martha	17-3	3-53	9	22	3-35	4	24

NEGRO BOYSFourth Grade

Freeman, I.	9-5	8-12	1	12	8-17	3	11
Holman, G.	10-2	9-35	14	9	7-46	6	12
Taylor, L.	11-6	6-20	7	14	6-00	2	16
Mason, W.	10-7	7-30	21	10	7-10	6	12
Jones, A.	10-8	6-32	9	13	6-11	3	15
Herndon, G.	11-2	9-39	2	10	8-00	2	12
Jones, E.	10-8	7-45	8	11	6-49	4	13
Jackson, O.	11-11	7-43	6	12	6-33	13	13
Johnson, E.	12-0	11-56	6	7	10-14	4	9
Holman, M.	12-2	10-30	20	7	8-30	15	10
Barrett, F.	13-1	6-46	9	13	5-36	8	16
Coates, R.	13-1	7-42	9	11	6-06	5	15
Donnell, E.	12-10	6-36	3	14	6-56	2	14
Coates, J.	14-5	7-12	5	13	6-30	5	14
Collins, B.	13-11	7-00	5	13	6-17	4	15
Donnell, L.	14-0	6-50	8	12	6-00	7	15
Donnell, C.	15-1	4-44	4	19	4-53	1	20
Foster, U.	14-10	5-40	2	17	5-03	1	19

Negro Boys

<u>Trial I</u>		<u>Fifth Grade</u>			<u>Trial II</u>		
Name	Age	Time	Errors	M.P.M.	Time	Errors	M.P.M.
Renfro, K.	10-6	6-21	13	13	4-40	17	17
Brown, J.	9-9	6-07	2	15	5-07	2	18
Harris, R.	11-2	7-24	7	12	5-58	5	15
Sheley, W.	11-0	6-12	5	15	5-14	2	18
Roberts, C.	11-10	6-00	9	15	5-48	2	16
Clark, O.	11-7	6-54	5	13	6-26	4	14
Madison, L.	12-0	5-56	16	13	5-37	11	15
Foster, R.	13-5	5-38	2	17	6-03	3	15
Clarkson, R.	13-3	8-47	5	10	5-56	2	16
Jonson, F.	12-11	6-27	17	12	6-40	4	14
Tibbs, E.	12-10	6-58	8	13	7-00	8	13
Campbell, G.	13-5	6-58	12	12	6-42	8	13
Washington, W.	13-0	5-13	4	18	5-27	6	17
Robnett, G.	13-3	8-26	6	11	7-58	10	11
Carter, G.	14-3	6-35	9	13	6-17	4	15
Griswell, Q.	13-8	7-25	0	15	5-55	0	16
Marshall, L.	13-9	7-48	3	12	6-59	1	14
Scott, W.	14-1	7-20	8	12	5-40	4	16
Trigg, O.	13-9	5-02	1	19	4-14	2	22
Woods, R.	15-2	6-20	4	15	6-34	4	15

Sixth Grade

Washington, J.	12-6	6-02	2	16	5-53	5	15
Gatewood, J.	11-9	7-27	7	12	6-36	7	13
Carter, B.	12-0	7-17	8	12	6-27	0	15
Hicks, P.	12-3	9-09	6	10	10-00	1	10
Johnson, W.	12-1	6-39	8	13	6-09	2	15
Patrick, W.	12-3	8-22	4	11	5-55	7	15
Hughes, V.	13-1	6-17	11	14	5-48	4	16
Roley, J.	13-3	6-44	25	11	5-31	24	13
Sheley, J.	14-5	6-45	13	12	6-11	2	15
Coleman, C.	13-8	6-30	9	13	5-47	0	16
Gregory, S.	14-2	7-33	14	11	5-58	2	16
Caldwell, S.	15-0	6-51	8	13	5-57	6	15
Coleman, G.	16-2	4-50	8	18	4-14	1	22
Williams, S.	16-9	6-06	8	14	4-25	1	21
Huggard, H.	16-8	4-28	5	20	4-47	6	19
Carter, R.	17-8	5-47	7	15	5-14	2	18

Seventh Grade

Robnett, M.	12-0	6-28	10	13	5-47	4	16
Freeman, J.	16-4	6-36	8	13	4-49	6	19
Shelby, E.	16-6						
Richardson, J.	16-0	6-25	22	12	4-41	5	19

Negro Boys

<u>Trial I</u>	<u>First Year High School</u>				<u>Trial II</u>		
Name	Age	Time	Errors	M.P.M.	Time	Errors	M.P.M.
Logan, W.	13-2	6-7	7	15	5-12	2	18
Carter, E.	13-10	6-16	9	14	5-09	2	18
Williams, J.	13-11	5-42	15	14	5-42	2	16
Wilson, H.	15-6	7-15	29	29	6-11	25	11
Benton, C.	15-6	5-41	2	17	4-24	4	21
Reeves, G.	16-5	5-01	4	18 ^c	4-53	5	19
Baker, M.	16-9	6-06	15	13	5-09	6	17
Porter, J.	18-3	5-08	15	16	4-42	8	19

Second Year High School

Muese, G.	13-9	5-58	8	15	5-25	1	18
Pipes, I.	15-2	5-27	3	17	5-54	3	16
Turner, W.	15-7	5-02	9	17	4-32	15	18
Muese, H.	16-6	4-25	14	19	3-40	13	23

Third Year High School

Russel, D.	18-2	5-24	21	14	4-27	12	19
Marshall, R.	16-8	4-37	14	18	4-06	11	21

WHITE BOYSFourth Grade

Cunnindham, R.	9-6	4-52	2	20	4-30	3	21
Sexton, M.	9-10	6-37	1	14	6-03	2	16
Wood, E.	10-1	5-25	2	17	4-54	3	19
Farthing, O.	10-0	6-35	2	14	6-09	2	15
Estes, A.	10-7	6-22	12	13	6-35	4	14
Wiggington, L.	10-9	6-48	3	14	6-44	2	14
Sanker, E.	10-9	6-02	5	15	5-30	2	17
Ware, F.	10-3	6-40	19	12	5-35	20	14
Roberts, R.	11-2	5-01	3	19	4-24	1	22
Ott, V.	11-11	5-51	5	16	4-32	2	21
Brown, A.	11-8	6-37	6	14	6-02	5	15
McKee, L.	11-5	7-06	3	13	6-04	3	15
Nichols, E.	11-6	5-45	5	16	5-37	11	15
Wren, H.	12-2	7-53	13	10	6-59	4	13
Shooh, H.	9-11	6-17	5	14	5-34	5	16
Cox, W.	10-5	6-47	4	14	5-50	4	16
Aubrecht, T.	11-7	6-18	7	14	5-26	5	17
Richardson, S.	11-2	4-46	2	20	4-11	0	23
Noel, G.	11-6	6-37	8	13	5-21	7	17
Edmonson, E.	13-2	6-05	4	15	5-47	9	15
Cook, O.	14-5	5-45	12	15	6-08	11	14

White Boys

<u>Trial I</u>		<u>Fifth Grade</u>			<u>Trial II</u>		
Name	Age	Time	Errors	M.P.M.	Time	Errors	M.P.M.
Ficklin, C.	10-8	6-20	10	14	6-22	3	15
Purdy, L.	11-3	4-42	3	20	3-56	2	24
King, R.	11-11	5-42	11	15	5-25	1	18
Barnes, T.	11-0	7-52	3	12	6-30	2	14
Graff, G.	11-11	4-40	8	19	4-35	8	19
Anderson, O.	12-9	5-05	11	17	4-10	2	23
Batterton, C.	12-8	7-00	17	11	6-20	3	15
Bishop, J.	12-7	7-10	8	12	6-20	0	15
Forsee, R.	12-4	5-35	15	15	5-30	10	16
Vandiver, R.	12-1	5-16	3	18	5-01	4	18
Roberts, C.	13-11	3-55	9	22	3-51	2	24
Miller, E.	13-2	5-30	8	16	5-45	9	15
McCown, T.	14-10	7-25	8	12	6-22	8	14
Shearer, G.	14-1	7-38	13	11	6-38	4	14
Carey, D.	14-5	6-15	10	14	5-12	7	17

Sixth Grade

Cook, C.	11-4	4-59	11	17	4-57	15	16
Long, J.	11-8	6-09	2	15	5-45	5	16
Hulan, D.	12-10	4-59	5	18	4-48	3	19
Hayden, S.	12-10	6-00	1	16	4-54	1	19
Cottle, E.	12-6	4-59	1	19	4-41	4	20
Cowden, J.	12-5	6-08	5	15	6-22	3	15
Cowden, R.	12-11	5-55	16	14	5-58	19	13
Allen, J.	12-0	4-40	3	20	4-26	3	21
Hopper, R.	12-7	6-05	5	15	5-16	2	18
Turner, J.	12-1	5-10	4	18	4-14	3	22
Whiteside, R.	13-2	5-09	4	18	4-38	6	20
Wyatt, S.	13-11	5-00	9	17	4-35	8	19
Rowland, B.	13-6	4-50	4	19	4-15	0	23
Jacobs, F.	13-3	7-04	4	13	6-15	1	15
March, R.	13-5	4-45	1	20	4-35	3	20
Eubank, R.	14-2	4-35	6	20	4-30	7	20
McCasky, R.	15-3	4-59	2	19	5-01	24	14
Wilhite, C.	15-3	3-40	14	22	3-28	2	27
Wightman, M.	15-4	4-30	12	19	4-27	10	19

Seventh Grade

Sappington, R.	11-11	4-30	4	20	4-47	2	19
Hughes, A.	12-10	4-25	5	20	4-56	8	22
Armstrong, F.	12-3	6-30	3	14	5-40	3	16
Russel, G.	12-2	5-30	6	16	4-50	7	18
Crouch, R.	12-3	4-25	4	21	3-51	4	24
Tindall, A.	13-1	6-20	5	14	5-15	7	17
McGuire, H.	13-2	5-10	2	18	5-00	5	18

<u>Trial I</u>		<u>Seventh Grade</u>			<u>Trial II</u>		
Name	Age	Time	Errors	M.P.M.	Time	Errors	M.P.M.
Kidwell, G.	13-0	4-39	6	19	4-14	9	21
Pool, E.	13-1	4-53	9	18	4-45	3	20
Ruddy, W.	13-6	5-10	4	18	3-40	2	26
Simpson, R.	13-3	4-30	12	19	5-20	3	17
Eichelberger, R.	14-7	5-20	18	15	5-55	0	16
Daniels, H.	14-0	4-45	3	20	4-10	4	22
Chasity, G.	14-4	6-30	17	12	5-00	5	18
Gilbert, S.	14-5	4-50	6	19	4-07	1	23
Coffman, C.	15-1	4-14	2	22	4-01	1	24
Cox, C.	15-3	4-15	5	21	3-50	6	23
Blackmore, E.	15-2	7-30	16	11	5-40	2	17
Peabody, R.	15-11	5-38	0	17	5-25	2	17
Windsor, A.	16-1	4-50	0	20	5-10	2	18
Kinkade, A.	18-0	4-14	9	21	3-25	10	25

B

Original data for 19 practice days of 25 minute periods
for 6 subjects

Negro Girls

1bg		2bg		3bg	
Time	Errors	M.P.M.	Time	Errors	M.P.M.
Feb. 29, 1916					
5-58	0	16.08	5-40	6	15.88
4-57	0	19.39	4-27	8	19.77
4-51	1	19.58	4-18	2	21.86
5-15	1	22.35	4-04	2	23.11
Av.		19.33			20.15
March 1, 1916					
4-11	1	22.70	4-04	2	23.11
4-25	0	21.73	4-00	1	23.75
4-17	0	22.17	3-54	0	24.61
4-13	1	22.52	3-53	1	24.46
Av.		22.56			23.98
March 2, 1916					
3-42	0	25.94	3-04	1	30.97
3-27	1	27.53	3-12	1	29.68
3-25	0	28.09	3-20	3	27.90
3-20	1	28.50	2-58	1	32.02
3-35	1	26.51	2-53	5	31.56
			2-51	0	33.68
Av.		27.31			30.96

Negro Girls

1bg			2bg			3bg		
Time Errors M.P.M.-			Time Errors M.P.M.-			Time Errors M.P.M.-		
March 3, 1916								
3-12	0	30.00	3-07	1	30.46	3-07	1	30.46
3-15	0	29.53	3-14	2	29.07	3-02	3	30.65
3-19	0	28.94	3-02	1	31.31	3-02	4	30.32
3-08	0	30.64	3-17	1	28.93	2-59	0	32.12
3-21	2	28.05	3-02	4	30.32	2-51	0	33.68
3-20	0	28.80	2-43	2	34.60			
Av.		29.32			30.78			31.44
March 6, 1916								
3-14	0	29.69	2-43	2	34.60	3-00	1	31.66
3-48	1	25.00	2-42	5	33.70	2-39	0	36.22
3-23	0	28.37	2-34	9	33.88	3-06	0	30.90
3-45	1	25.33	2-45	0	34.90	2-50	4	32.47
3-23	0	28.37	2-52	0	33.48	3-03	1	31.14
3-07	0	30.80	2-46	4	33.25	2-55	2	32.22
						2-53	2	32.60
Av.		27.92			33.97			32.46
March 7, 1916								
3-10	0	30.31	2-54	1	32.75	2-40	0	36.00
2-48	0	34.28	2-56	2	32.04	2-22	3	39.29
2-55	1	32.57	2-53	1	32.94	2-26	2	38.63
3-09	0	30.47	3-07	1	30.48	2-20	2	40.28
3-13	1	29.52	2-46	0	34.69	2-33	1	37.25
2-58	0	32.35	2-49	1	33.72	2-37	0	36.68
						2-21	0	40.85
Av.		31.58			32.77			38.42
March 8, 1916								
2-43	0	35.33	2-39	0	36.22	2-19	0	41.43
2-49	0	34.08	2-43	0	35.33	2-19	0	41.43
2-44	0	35.12	2-50	0	33.88	2-20	1	40.71
2-40	0	36.00	2-52	1	33.13	2-38	0	36.45
2-49	0	34.08	2-53	1	32.94	2-26	1	39.04
2-50	0	33.88	2-47	0	34.49	2-42	0	35.55
2-37	0	36.68				2-36	0	36.92
Av.		35.02			34.33			38.79
March 9, 1916								
2-30	0	38.40	2-30	0	38.40	2-19	0	41.43
2-38	0	36.45	2-19	2	40.57	2-10	0	44.30
2-35	0	37.16	2-31	5	36.15	2-13	2	42.42
2-27	0	39.18	2-39	1	35.84	2-21	1	40.42
2-33	0	37.64	2-22	1	40.14	2-30	2	37.60
2-35	0	37.16	2-25	2	38.89	2-17	0	42.04
2-32	0	37.89	2-24	2	39.16	2-26	0	39.45
						2-22	0	40.56
Av.		37.84			38.45			41.02

Negro Girls

1bg			2bg			3bg		
Time Errors H.P.M.			Time Errors H.P.M.			Time Errors H.P.M.		
March 10, 1916								
2-49	0	34.08	2-18	0	41.73	2-13	3	41.95
2-35	0	37.16	2-28	0	38.91	2-36	4	35.38
2-34	0	37.46	2-20	4	39.42	2-05	1	45.60
2-26	0	39.45	2-39	0	36.22	2-09	0	44.65
2-25	0	39.72	2-25	0	39.72	2-06	0	45.71
2-49	2	33.37	2-25	3	38.48	2-10	0	44.30
2-32	0	37.89	2-22	0	40.56	2-12	1	43.18
Av.		37.01			39.29			42.96
March 13, 1916								
2-27	0	39.18	2-20	0	41.14	2-10	1	43.84
2-30	0	38.40	2-22	0	40.56	2-27	1	38.77
2-44	0	35.12	2-17	0	42.04	2-06	0	45.71
2-52	0	33.48	2-05	0	46.07	2-00	2	47.00
2-31	0	38.14	2-19	0	41.43	2-20	3	39.85
2-41	0	35.77	2-07	0	45.35	2-08	1	44.53
2-26	2	38.63	2-08	1	44.53	2-18	1	41.30
Av.		36.96			43.01			43.00
March 14, 1916								
2-24	0	40.00	2-09	0	44.65	2-03	1	46.34
2-16	1	41.91	2-22	1	40.14	2-08	0	45.00
2-14	0	42.91	2-09	0	44.65	2-04	0	46.45
2-20	1	40.71	2-09	2	43.72	2-12	0	43.63
2-20	0	41.14	2-03	0	46.82	2-05	0	46.07
2-13	0	43.48	2-10	0	44.30	2-16	1	41.91
2-19	0	41.43	2-08	1	44.53	2-10	0	44.30
			2-02	0	47.21	2-09	0	44.65
Av.		41.65			44.50			44.80
March 15, 1916								
2-18	0	41.73	2-05	1	45.60	2-01	2	46.61
2-09	1	44.10	2-04	0	46.35	2-05	0	46.07
2-07	0	45.35	2-12	0	43.63	2-04	0	46.45
2-06	0	45.71	2-20	1	40.71	2-19	2	40.57
2-03	0	46.82	2-20	1	40.71	2-26	2	38.63
2-08	1	44.53	2-15	1	42.22	2-22	2	39.71
2-24	1	39.58	2-16	1	41.91	2-09	3	43.26
2-11	0	43.96			?			
Av.		43.97			43.01			43.04
March 16, 1916								
2-15	1	42.22	2-02	0	47.21	2-20	2	40.28
2-11	2	43.05	2-07	0	45.35	2-02	0	47.21
2-10	0	44.30	2-11	2	43.05	2-02	2	46.22
2-05	0	46.07	2-16	0	42.35	2-03	1	46.34
2-15	0	42.66	2-03	0	46.82	2-02	1	46.72
2-05	0	46.07	2-10	2	43.38	2-06	2	44.76
2-00	0	48.00	2-12	2	42.72	2-09	0	44.65
2-00	0	48.00	2-10	4	42.46	2-04	0	46.45
Av.		45.17			44.16			45.32
March 17, 1916								

Negro Girls

1bg			2bg			3bg		
Time	Errors	M.P.M.	Time	Errors	M.P.M.	Time	Errors	M.P.M.
March 17, 1916								
2-03	0	46.82	2-07	0	45.35	2-00	0	48.00
2-01	0	47.60	2-02	0	47.21	1-52	0	51.42
2-05	0	46.07	2-23	4	38.60	1-50	1	51.81
2-00	0	48.00	2-17	0	42.55	1-49	1	52.30
2-04	0	46.35	2-18	0	41.73	1-52	1	50.89
2-05	0	46.07	2-10	1	43.84	1-51	2	50.81
2-06	0	45.71	2-14	1	42.53	1-51	3	50.27
2-01	0	47.60				1-53	2	49.91
Av.		46.77			43.11			50.67
March 20, 1916								
2-16	0	42.35	2-05	0	46.07	1-50	4	50.18
2-11	1	43.51	2-02	0	47.21	1-52	1	50.89
2-00	0	48.00	1-53	0	50.97	2-00	1	47.50
2-06	0	45.71	1-50	1	51.81	1-55	0	50.08
2-10	0	44.30	1-55	0	50.08	1-55	1	49.56
2-06	0	45.71	1-49	0	52.84	1-56	3	48.10
2-02	0	47.21	1-58	1	48.30	2-04	1	45.16
1-59	0	48.40	1-57	1	48.71	1-57	2	48.20
Av.		45.64			49.49			48.70
March 21, 1916								
1-55	0	50.08	1-44	1	54.80	1-41	2	55.84
1-46	1	53.77	1-45	1	54.28	1-50	1	51.81
1-56	0	49.65	1-45	0	54.85	1-50	2	51.27
1-59	1	47.89	1-46	2	53.20	1-46	2	53.20
1-56	2	48.62	1-48	0	53.33	1-51	2	50.81
1-49	0	52.84	1-50	0	52.36	1-48	5	50.55
1-48	0	53.33	1-52	0	51.42	1-53	4	48.85
Av.		50.88			53.46			51.76
March 22, 1916								
1-50	0	52.36	1-55	1	49.56	1-56	2	48.62
1-57	0	49.23	2-01	1	47.10	2-11	1	43.51
1-53	0	50.97	2-02	0	47.21	1-56	1	49.13
1-53	0	50.97	2-04	0	46.35	1-56	1	49.13
2-06	0	45.71	2-01	0	47.60	1-56	2	48.62
1-54	0	50.52	2-06	0	45.71	1-53	2	49.91
1-54	0	50.52	2-03	0	46.82	2-04	0	46.35
1-55	0	50.08	2-00	0	47.21	2-49	3	51.19
Av.		50.04			47.19			48.19
March 23, 1916								
1-38	1	58.16	1-43	2	54.75	1-39	5	55.15
1-43	0	55.92	1-38	2	57.55	1-48	1	52.77
1-48	0	53.33	1-42	2	55.29	1-45	3	53.14
1-55	0	50.08	1-39	0	58.18	1-47	0	53.83
1-50	2	51.27	1-38	0	58.77	1-54	5	47.89
1-55	0	50.08	1-42	0	56.47	1-43	0	55.92
1-48	0	53.33	1-40	0	57.60	1-52	0	51.42
1-52	0	51.42	1-36	0	60.00	1-56	2	48.62
Av.		52.94			57.32			52.34

1-48
1-46
1-44
1-42
1-40
1-38
1-36
1-34
1-32
1-30
1-28
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1-22
1-20
1-18
1-16
1-14
1-12
1-10
1-08
1-06
1-04
1-02
1-00

Negro Girls

70

1bg			2bg			3bg		
Time Errors M.P.M.			Time Errors M.P.M.			Time Errors M.P.M.		
March 24, 1916								
1-48	0	53.33	1-29	0	64.71	1-42	1	56.43
1-43	0	55.92	1-29	0	64.71	1-43	0	55.92
1-45	0	54.85	1-31	1	62.63	1-51	2	50.81
1-56	0	49.65	1-35	1	60.00	1-50	2	51.27
1-48	0	53.33	1-35	1	60.00	1-47	2	52.71
1-57	0	49.23	1-29	0	64.71	1-48	2	52.22
1-58	1	48.30	1-34	1	60.63	1-48	5	50.55
1-48	0	53.33	1-30	0	64.00	1-52	1	50.89
Av.		52.23			62.91			52.60

White Girls

1wg			2wg			3wg		
March 27, 1916								
4-57	1	19.16	3-55	11	21.70	5-14	3	17.77
4-10	1	22.80	3-42	11	22.97	4-45	5	19.15
3-59	1	23.84	3-27	10	24.92	4-05	3	22.77
3-46	3	24.69	3-30	5	26.00	3-51	1	24.67
3-15	1	29.23	3-12	3	29.06			
Av.		23.94			24.93			21.09
March 28, 1916								
3-10	0	30.31	2-53	1	32.94	3-54	0	24.61
2-46	0	34.69	3-06	7	28.70	3-33	1	26.76
2-43	0	35.33	3-14	2	29.07	3-25	0	28.09
2-28	1	38.51	2-49	7	23.31	3-33	0	27.04
2-42	2	34.81	3-09	3	29.52	3-35	1	26.51
2-35	0	37.16			28.70			26.60
Av.		35.13			28.70			26.60
March 29, 1916								
2-28	0	38.91	2-31	2	37.35	3-12	1	29.68
2-29	2	37.85	2-32	4	36.31	3-17	2	28.62
2-27	2	38.36	2-51	1	33.33	3-10	1	30.00
2-18	0	41.73	2-45	6	32.72	2-59	1	31.84
2-29	2	37.85	2-41	6	33.54	3-25	2	27.51
2-17	2	41.16	2-37	3	35.54	2-52	0	33.48
2-22	0	40.56						
Av.		39.46			34.79			30.18
March 30, 1916								
2-32	1	37.50	2-41	1	35.40	2-38	0	36.45
2-09	0	44.65	2-42	0	35.55	2-50	1	33.52
2-21	0	40.85	2-52	1	33.13	2-37	1	36.30
2-08	1	44.53	2-51	1	33.33	2-45	0	34.90
2-18	0	41.73	2-33	5	35.68	2-46	2	33.97
2-06	0	45.71	2-41	1	35.40	2-40	4	34.50
2-16	0	42.35	2-45	3	33.81	2-36	1	36.53
Av.		42.47			34.61			35.22

White Girls

1wg		2wg		3wg	
Time	Errors	M.P.M.	Time	Errors	M.P.M.
March 31, 1916					
2-00	0	48.00	2-22	2	39.71
1-55	0	50.08	2-17	1	41.60
2-00	0	48.00	2-31	1	37.74
1-53	1	50.44	2-16	0	42.35
1-52	1	50.89	2-29	1	38.25
2-00	5	45.50	2-35	4	35.61
1-52	2	50.35	2-38	1	36.07
1-42	0	56.47	2-24	2	39.16
Av.		49.96			38.76
April 3, 1916					
1-53	1	50.44	2-21	0	40.85
1-57	0	49.23	2-21	0	40.85
1-46	0	54.33	2-18	0	41.73
1-49	2	51.74	2-22	1	40.14
1-52	2	50.35	2-09	2	43.72
1-52	1	50.89	2-15	0	42.66
1-40	1	57.00	2-20	1	40.71
1-53	1	50.44	2-29	1	38.25
Av.		51.79			41.52
April 4, 1916					
1-50	1	51.81	2-21	0	40.85
1-49	1	52.30	2-16	0	42.35
1-44	2	54.23	2-05	1	45.60
1-42	0	56.47	2-04	0	46.45
1-49	3	51.19	2-08	1	44.53
1-41	3	55.24	2-17	3	40.72
1-43	1	55.33	2-12	1	43.18
1-47	1	53.27	2-30	0	38.40
1-34	0	61.27			
Av.		54.56			43.33
April 5, 1916					
1-50	0	52.36	1-59	2	47.39
1-43	0	55.92	2-06	0	45.71
1-37	1	58.76	2-11	1	43.51
1-37	2	58.14	2-18	2	40.86
1-39	0	58.18	1-55	0	50.08
1-46	2	53.20	1-54	1	50.00
1-47	1	53.27	2-18	1	41.30
1-35	0	60.63	2-02	1	46.72
1-37	1	58.76	2-12	2	42.72
Av.		56.58			45.69
April 6, 1916					
1-41	0	57.02	2-07	0	45.35
1-37	0	59.38	2-05	0	46.07
1-38	0	58.77	2-03	0	46.82
1-38	1	58.16	2-06	1	45.23
1-40	0	57.60	2-06	4	43.80
1-37	0	59.38	2-09	0	44.65
1-39	1	57.54	2-01	0	47.60
1-42	1	56.43	1-57	0	49.23
1-39	1	57.54	1-59	2	47.39
Av.		57.98			46.09
					45.05

White Girls

1wg			2wg			3wg		
Time	Errors	M.P.M.	Time	Errors	M.P.M.	Time	Errors	M.P.M.
April 7, 1916								
2-06	3	44.28	2-00	4	46.00	2-00	0	48.00
1-46	2	53.20	2-04	0	46.45	2-07	0	45.35
2-06	3	44.28	2-04	1	45.96	2-01	0	47.60
1-46	0	54.33	2-08	2	44.06	2-00	0	48.00
1-42	1	56.43	1-59	1	47.89	2-05	0	46.07
1-41	1	56.43	2-09	0	44.65	2-17	0	42.55
1-42	0	56.47	2-01	0	47.60	2-27	0	39.18
1-41	1	56.43	2-00	1	47.50	2-06	1	45.23
1-46	0	54.33						
Av.		52.90			46.26			45.24
April 10, 1916								
1-47	0	53.83	2-05	1	45.60	1-59	2	47.39
1-42	2	55.29	1-59	0	48.40	2-06	0	45.71
1-45	0	54.85	2-07	1	45.98	1-59	1	47.89
1-51	5	49.18	2-08	1	44.53	2-10	2	43.38
1-49	2	51.74	2-00	1	47.50	2-09	0	44.65
1-42	1	56.43	2-05	1	45.60	2-05	2	45.12
1-50	1	51.81	2-18	2	40.86	2-14	1	42.53
1-43	0	55.92	2-12	3	42.26	2-12	2	42.72
1-35	0	60.63						
Av.		54.40			45.09			44.92
April 11, 1916								
1-44	2	54.23	2-00	0	48.00	2-05	1	45.60
1-40	0	57.60	1-57	5	46.61	2-04	3	45.00
1-32	0	62.60	1-53	1	50.44	1-59	0	48.40
1-29	0	64.71	1-54	1	50.00	1-48	0	53.33
1-39	1	57.54	1-58	1	48.30	1-56	0	49.65
1-44	2	54.23	1-54	0	50.52	1-59	1	47.65
1-36	1	59.37	1-51	3	50.27	2-03	3	45.36
1-29	0	64.71	1-48	0	53.33	2-03	2	45.85
1-27	0	66.20						
Av.		60.13			49.68			47.63
April 12, 1916								
1-41	0	57.02	1-41	0	57.02	1-55	1	49.56
1-31	0	63.29	2-07	1	45.98	1-59	1	47.89
1-38	2	57.55	1-53	1	50.44	2-00	0	48.00
1-33	0	61.93	1-49	0	52.84	2-00	1	47.50
1-34	2	60.00	2-03	0	46.82	1-57	1	48.71
1-33	1	61.29	1-57	2	48.20	1-54	0	50.52
1-28	0	65.45	1-55	1	49.56	1-53	1	50.44
1-34	0	61.27	1-51	3	50.27	1-51	0	51.80
1-41	1	56.43	1-56	1	49.13	1-53	2	49.91
1-30	0	64.00						
Av.		61.12			50.02			49.37

White Girls

1wg		2wg		3wg	
Time	Errors	M.P.M.	Time	Errors	M.P.M.
April 13, 1916					
1-40	2	56.40	1-53	0	50.97
1-26	2	65.58	1-59	2	47.39
1-33	0	61.93	1-59	0	48.40
1-29	0	64.71	2-00	0	48.00
1-28	0	65.45	1-57	0	49.23
1-33	0	61.93	1-59	4	46.38
1-29	1	64.04	2-05	2	45.12
1-31	2	61.97	2-00	1	47.50
1-31	1	62.63		1-53	0
1-30	1	63.33			50.97
Av.		62.79			47.87
April 14, 1916					
1-47	0	53.83	1-49	1	52.30
1-33	1	61.29	1-44	0	55.38
1-31	3	61.23	1-42	1	56.43
1-36	2	58.75	1-51	0	51.89
1-29	2	63.37	1-50	1	51.81
1-34	3	59.36	1-53	0	50.97
1-30	1	63.33	1-46	2	53.20
1-34	0	63.27	1-53	1	50.44
1-24	0	68.57		1-59	0
Av.		61.22			52.80
April 15, 1916					
1-36	1	59.37	1-46	0	54.33
1-33	0	61.93	1-51	0	51.89
1-34	0	61.27	1-50	4	50.18
1-35	3	58.73	2-00	0	48.00
1-30	4	61.33	1-53	2	49.91
1-33	0	61.93	1-52	1	50.89
1-28	0	65.45	1-53	2	49.91
1-31	0	63.29	1-57	3	47.69
1-33	0	61.93		1-55	1
Av.		61.69			50.35
April 17, 1916					
1-30	0	64.00	1-47	0	53.83
1-29	1	64.04	1-51	1	51.35
1-29	0	64.71	1-54	1	50.80
1-34	0	61.27	1-50	1	51.81
1-33	0	61.93	2-00	1	47.50
1-29	0	64.71	1-54	1	50.00
1-29	2	63.37	1-48	1	52.77
1-22	0	70.24	1-54	0	50.52
1-30	2	62.66		1-45	1
1-31	0	63.29			54.28
Av.		64.02			50.97

White Girls

1wg		2wg		3wg	
Time	Errors	M.P.M.	Time	Errors	M.P.M.
April 18, 1916					
1-33	1	61.29	1-47	1	53.27
1-27	0	66.20	1-40	0	57.60
1-27	1	65.51	1-43	0	55.92
1-29	0	64.71	1-37	0	59.38
1-27	0	66.20	1-48	1	52.77
1-30	1	63.33	1-43	1	55.33
1-30	0	64.00	1-48	0	53.33
1-28	0	65.45	1-47	0	53.83
1-25	0	67.76	1-59	1	47.89
1-27	1	65.51			
Av.		64.99			54.36
April 19, 1916					
1-26	0	66.97	1-38	0	58.77
1-23	0	69.39	1-28	0	65.45
1-23	0	69.39	1-36	1	59.37
1-21	0	71.11	1-36	0	60.00
1-21	1	70.37	1-36	0	60.00
1-24	0	68.57	1-39	1	57.54
1-27	1	65.51	1-39	1	57.54
1-26	2	65.58	1-31	0	63.29
1-26	1	66.27	1-32	5	59.34
1-22	2	68.78			
Av.		68.19			60.14

Negro Boys

1bb		2bb		3bb	
Feb. 29, 1916					
4-34	13	18.17	7-32	0	12.74
4-17	7	20.77	6-12	0	15.48
3-54	5	23.33			
3-52	3	24.05			
Av.		21.33		14.11	
March 1, 1916					
3-27	1	27.72	6-23	1	14.88
3-20	6	27.00	6-16	1	15.15
3-23	5	26.89	6-02	2	15.58
3-04	2	30.68			
3-22	3	27.62			
Av.		27.98		15.20	
March 2, 1916					
2-54	5	31.37	4-07	0	23.31
2-55	1	32.57	3-55	0	24.51
2-50	6	31.76	4-33	1	20.87
2-57	1	32.20	4-00	4	23.00
2-41	1	35.40			
2-56	0	32.72			
Av.		32.67		22.92	

Negro Boys

75

1bb			2bb			3bb		
Time	Errors	M.P.M.	Time	Errors	M.P.M.	Time	Errors	M.P.M.
March 3, 1916								
2-43	0	35.33	4-00	0	24.00	3-14	1	29.38
2-45	4	33.45	4-05	2	23.00	3-02	0	31.64
2-37	4	35.15	4-00	0	24.00	3-03	1	31.14
2-46	3	33.69	4-09	0	23.30	2-50	0	33.88
2-29	3	37.45	3-36	0	26.66	2-47	2	33.17
2-29	6	36.24				2-34	1	37.01
2-25	2	38.62						
Av.		35.70			24.19			32.70
March 6, 1916								
2-22	1	40.14	3-20	0	26.80	2-32	0	37.89
2-25	3	38.48	2-11	1	29.84	2-24	0	40.00
2-18	3	40.43	2-05	1	30.81	2-24	2	39.16
2-31	1	37.74	3-14	2	29.09	2-42	2	34.81
2-30	1	38.00	3-28	3	27.02	2-24	1	39.58
2-24	1	39.58	3-38	0	26.42	2-33	2	36.86
2-37	3	35.54				2-44	3	34.02
Av.		38.55			28.66			37.47
March 7, 1916								
2-23	0	40.27	3-04	0	31.30	2-23	2	39.44
2-12	4	41.81	2-58	3	31.34	2-30	1	38.00
2-15	0	42.66	3-05	0	31.13	2-21	0	40.85
2-20	1	40.71	3-13	1	29.53	2-15	2	41.77
2-18	1	41.30	3-37	1	26.26	2-28	1	38.51
2-37	0	36.68	3-17	0	29.23	2-21	0	40.85
2-06	0	45.71				2-33	2	36.86
Av.		41.30			29.79			39.46
March 8, 1916								
1-57	0	49.23	3-04	1	30.97	2-25	0	39.72
1-57	2	48.20	3-01	0	31.82	2-15	0	42.66
2-04	2	45.48	3-14	0	29.69	2-22	0	40.56
1-54	0	50.52	3-02	1	31.31	2-17	3	40.72
2-18	1	41.30	3-13	1	29.53	2-29	4	37.04
1-59	3	46.89	3-04	2	30.68	2-26	1	39.04
1-58	2	47.79				2-32	0	37.89
1-56	2	48.62						
Av.		47.25			30.66			39.66
March 9, 1916								
1-43	0	55.92	2-50	1	33.54	2-13	0	40.38
1-58	1	48.30	2-57	0	32.54	2-16	0	42.35
1-52	0	51.42	2-54	0	33.73	2-22	0	40.56
2-02	3	45.73	2-46	1	34.33	2-29	2	37.85
1-57	2	48.20	2-50	0	33.88	2-35	4	35.61
2-01	3	46.11	2-48	0	34.28	2-14	1	42.53
1-59	2	47.39	2-57	0	32.54	2-07	3	43.93
1-53	3	49.38				2-10	2	43.38
2-00	1	47.50						
Av.		48.88			33.40			41.19

Negro Boys

76

1bb			2bb			3bb		
Time Errors M.P.M.			Time Errors M.P.M.			Time Errors M.P.M.		
March 10, 1916								
1-53	1	50.44	2-50	4	32.82	2-13	2	42.42
1-59	1	47.89	2-41	1	35.40	1-54	0	50.52
1-53	3	49.38	2-48	1	33.92	1-54	1	50.00
2-00	1	47.50	2-48	1	33.92	2-01	2	46.61
2-00	4	46.00	3-09	1	30.15	1-56	3	48.10
2-00	0	48.00	2-39	0	36.22	1-56	2	48.62
1-44	1	54.80	2-47	2	33.17	2-06	0	45.71
1-50	3	50.72				1-56	2	48.62
Av.		49.30			33.65			47.57
March 12, 1916								
1-51	2	50.81	3-01	1	31.49	2-07	0	45.35
1-57	2	48.20	2-41	1	35.40	2-03	0	46.82
1-59	1	47.89	2-32	1	37.50	2-03	0	46.82
1-56	2	48.62	2-41	0	35.77	1-57	0	49.23
1-57	0	49.23	2-37	0	36.68	1-52	0	51.42
2-04	1	45.96	2-44	0	35.12	2-00	1	47.50
1-54	2	49.47	2-48	0	34.28	1-58	0	48.81
1-56	2	48.62				1-55	1	49.56
Av.		48.60			35.17			48.18
March 14, 1916								
2-01	0	47.60	2-48	1	33.92	2-01	1	47.10
1-56	2	48.62	2-42	1	35.18	2-02	2	46.22
2-03	0	46.82	2-44	0	35.12	2-10	1	43.84
1-51	1	51.35	2-40	2	35.25	1-56	0	49.65
1-58	1	48.30	2-36	2	36.15	1-47	1	53.27
2-10	3	42.92	2-38	1	36.07	1-50	1	51.81
2-12	5	41.36	2-35	0	36.92	1-58	2	47.79
2-22	3	39.29				1-48	2	52.22
Av.		45.79			35.51			48.96
March 15, 1916								
2-01	0	47.60	2-35	1	36.77	2-09	1	44.18
1-49	1	52.30	2-27	2	38.36	1-55	0	50.08
1-53	3	49.38	2-28	3	37.70	1-56	0	49.65
1-47	4	51.58	2-43	3	34.23	1-57	0	49.23
2-05	4	44.16	2-38	3	35.31	1-59	3	46.89
1-51	4	49.72	2-34	0	37.46	1-50	0	52.36
2-06	2	44.76	2-43	1	34.96	1-44	2	54.23
1-50	2	51.27				1-49	1	52.30
Av.		48.84			36.11			49.86
March 16, 1916								
1-44	1	54.80	2-16	0	42.35	2-08	0	45.00
1-47	2	52.71	2-11	2	43.05	1-57	0	49.23
1-49	4	50.64	2-26	1	39.09	2-01	0	47.60
1-58	0	48.81	2-19	0	41.43	2-06	2	44.76
1-57	3	47.69	2-32	1	37.50	1-50	1	51.81
1-53	1	50.44	2-26	0	39.45	1-58	4	46.77
1-58	5	46.27	2-15	0	42.66	1-53	0	50.97
1-54	2	49.47				1-42	1	56.43
Av.		50.10			40.78			49.07

Negro Boys

77

1bb			2bb			3bb		
Time	Errors	M.P.M.	Time	Errors	M.P.M.	Time	Errors	M.P.M.
March 17, 1916								
1-49	1	52.30	2-14	3	40.43	1-53	0	50.97
1-50	1	51.81	2-18	0	41.73	1-55	3	48.52
1-54	1	50.00	2-21	0	40.85	1-48	3	51.66
1-51	2	50.81	2-18	0	41.73	1-46	2	53.20
1-50	1	51.81	2-16	0	42.35	1-51	2	50.81
1-47	3	52.14	2-17	0	42.55	2-01	2	46.61
1-44	1	54.80	2-18	0	41.73	1-48	0	53.33
1-52	1	50.89				1-50	1	51.81
Av.		51.82	Mar. 20, 1916		41.62			50.86
1-45	0	54.85	2-28	3	37.70	1-50	1	51.81
1-50	0	52.36	2-13	0	43.38	1-39	1	57.54
1-50	1	51.81	2-20	0	41.14	1-39	1	57.54
1-55	2	49.04	2-20	0	41.14	1-39	0	58.18
1-46	1	53.77	2-19	1	41.00	1-47	2	52.71
1-46	0	54.33	2-15	0	42.66	1-44	2	54.23
1-52	0	51.42	2-20	0	41.14	1-45	0	54.85
1-52	2	50.35	2-11	0	43.96	1-55	0	50.08
1-42	1	56.43				1-46	0	54.33
Av.		52.70	Mar. 21, 1916		41.51			54.58
1-31	0	63.29	2-15	0	42.66	1-45	2	53.71
1-38	0	58.77	2-09	1	44.10	1-41	1	56.43
1-39	2	56.96	2-05	0	46.07	1-39	0	58.18
1-41	2	55.84	2-07	0	45.35	1-41	1	56.43
1-37	0	59.38	2-07	1	45.04	1-41	0	57.02
1-38	0	58.77	2-11	2	43.05	1-42	1	56.43
1-39	2	56.96	2-18	0	41.73	1-40	3	55.80
Av.		58.56	Mar. 22, 1916		44.00			56.28
1-50	1	51.81	2-24	0	40.00	1-54	0	50.52
1-43	0	55.92	2-09	0	44.65	1-43	0	55.92
1-50	0	52.36	2-05	0	46.09	1-44	2	54.23
1-47	1	53.27	2-04	1	45.96	1-38	0	58.77
1-43	0	55.92	2-10	0	44.30	1-49	3	51.19
1-45	2	53.71	2-11	0	43.96	1-52	0	51.42
1-52	2	50.35	2-07	0	45.35	1-34	3	59.36
1-47	2	52.71	1-57	1	48.71	1-37	1	58.76
1-40	3	55.80				1-39	3	56.35
Av.		53.53	Mar. 23, 1916		44.87			55.16
1-32	0	62.60	2-05	1	45.60	1-39	1	57.54
1-33	0	61.95	1-52	1	50.89	1-30	0	64.00
1-41	2	55.84	1-52	0	51.42	1-30	1	63.33
1-33	2	60.63	1-54	0	50.52	1-32	0	62.60
1-38	1	58.16	1-56	0	49.65	1-39	1	57.54
1-43	3	54.17	1-59	0	48.40	1-32	0	62.60
1-41	1	56.43	2-06	0	45.71	1-30	1	63.33
1-40	2	55.40	2-03	0	46.82	1-23	0	68.66
1-35	1	60.00				1-32	2	60.86
Av.		58.46			48.75			62.27

Negro Boys

78

1bb			2bb			3bb		
Time	Errors	M.P.M.	Time	Errors	M.P.M.	Time	Errors	M.P.M.
March 24, 1916								
1-32	0	62.60	1-58	1	48.30	1-37	1	58.76
1-38	0	58.77	1-44	0	55.38	1-30	1	63.33
1-29	0	64.71	1-44	1	54.80	1-30	1	63.33
1-35	0	60.63	1-43	0	55.92	1-37	0	59.38
1-40	0	57.60	1-45	0	54.82	1-38	3	56.93
1-34	0	61.27	1-50	3	50.72	1-32	0	62.60
1-41	1	56.43	1-58	2	47.79	1-30	1	63.33
1-34	0	61.27	1-46	0	54.33	1-30	0	64.00
1-28	0	65.45				1-33	3	60.00
Av.		60.97			52.75			61.29

White Boys								
1wb		2wb				3wb		
March 27, 1916								
5-06	3	18.23	7-07	13	11.66	6-27	25	11.00
4-31	0	21.25	5-17	5	17.22	4-44	5	19.22
4-22	1	21.75	5-30	0	17.45	4-11	0	22.94
4-05	2	23.02				4-08	1	22.98
Av.		21.06			15.44			19.03
March 28, 1916								
4-06	1	23.17	5-06	3	18.23	4-26	1	21.42
4-21	4	21.14	4-37	4	19.92	4-30	3	20.66
4-01	4	22.90	4-29	3	20.74	3-51	3	24.15
3-47	2	24.84	4-10	0	23.04	3-57	1	24.05
3-46	3	24.69						
Av.		23.34			20.48			22.57
March 29, 1916								
3-02	0	31.64	4-01	1	23.65	3-16	2	28.77
3-08	1	30.31	3-35	0	24.51	3-18	1	28.78
3-25	3	27.21	3-58	1	23.94	3-27	2	27.24
3-00	2	31.33	3-30	0	27.42	3-27	2	27.24
3-00	2	31.33	3-46	1	25.66	3-15	1	29.23
Av.		30.36			25.03			28.25
March 30, 1916								
3-12	1	29.68	3-17	2	28.62	3-02	1	31.31
2-50	0	33.88	3-31	2	26.72	3-00	3	31.00
3-06	3	30.00	3-14	1	29.38	3-04	2	30.68
3-01	3	30.82	3-21	6	26.86	3-02	4	30.32
3-05	2	30.48	3-45	3	24.80	3-12	2	29.37
			3-32	2	26.60	3-06	4	29.13
Av.		30.97			27.16			30.30

White Boys

79

1wb		2wb		3wb			
Time	Errors	M.P.M.	Time	Errors	M.P.M.	Time	Errors
March 31, 1916							
3-03	3	30.49	2-48	1	33.92	2-58	4
2-45	2	34.18	3-10	0	30.31	2-45	1
2-37	4	35.15	2-50	0	33.88	2-40	0
2-39	1	35.84	3-05	6	29.18	2-43	1
2-49	1	33.72	3-18	4	27.87	2-41	3
2-55	2	32.22	3-04	1	30.97	3-06	5
2-44	0	35.12				3-03	1
Av.		33.81			31.02		33.09
April 3, 1916							
2-27	1	38.77	3-03	2	30.87	2-40	3
2-23	0	40.27	2-58	2	31.68	2-32	1
2-31	0	38.14	3-08	2	30.00	2-34	0
2-27	0	39.18	3-19	1	28.64	2-53	3
2-26	3	38.21	3-18	1	28.78	2-47	1
2-41	4	34.28	3-26	3	27.08	2-50	1
2-35	1	36.77				3-01	3
Av.		37.94			29.50		34.25
April 4, 1916							
2-10	1	43.48	2-59	3	31.17	2-43	1
2-15	2	41.71	2-47	5	32.69	2-37	2
2-18	1	41.30	2-58	1	32.02	2-30	0
2-20	1	40.71	2-48	4	32.85	2-31	1
2-21	1	40.42	3-01	1	31.49	2-59	3
2-23	2	39.44	3-02	6	29.66	3-17	1
2-12	1	43.18					
Av.		41.46			31.64		35.38
April 5, 1916							
2-14	0	42.91	2-41	2	35.03	2-34	0
2-12	0	43.63	2-38	2	35.69	2-37	1
2-21	5	38.37	2-48	5	32.50	2-31	2
2-14	5	40.74	2-57	2	31.86	2-27	1
2-25	2	38.62	2-47	2	33.17	2-35	0
2-19	2	40.57	2-50	3	39.82	2-40	1
2-03	1	46.34	2-56	4	31.36	2-51	2
2-10	3	42.92					
Av.		41.76			33.20		36.52
April 6, 1916							
2-17	1	41.60	2-16	1	41.91	2-34	1
2-06	1	45.23	2-11	3	42.59	2-37	1
2-18	1	41.30	2-10	2	43.38	2-35	2
2-12	2	42.72	2-14	1	42.53	2-40	1
2-11	3	42.59	2-07	0	45.35	2-25	2
2-02	1	46.72	2-14	3	41.64	2-24	2
2-06	1	45.23	2-23	0	40.27	2-13	1
2-00	3	46.50					
Av.		43.98			42.55		37.99

White Boys

1wb			2wb			3wb		
Time	Errors	M.P.M.	Time	Errors	M.P.M.	Time	Errors	M.P.M.
April 7, 1916								
2-14	1	42.53	2-26	6	36.98	2-22	1	40.14
2-05	1	45.50	2-30	1	38.00	2-26	1	39.04
2-03	3	45.36	2-32	4	36.31	2-17	0	42.55
2-06	2	44.76	2-23	1	39.86	2-07	1	45.98
2-19	3	40.14	2-40	2	35.25	2-13	1	42.85
2-13	1	42.85	2-34	1	37.01	2-16	1	41.91
2-07	2	44.40	2-37	3	35.54	2-25	2	38.62
1-59	0	48.40						
Av.		44.28			36.99			41.58
April 10, 1916								
2-14	3	41.64	2-25	2	38.62	2-24	2	39.16
2-03	2	45.85	2-27	1	38.77	2-21	1	40.42
1-57	0	49.23	2-31	1	37.74	2-25	1	39.31
1-57	2	48.20	2-31	1	37.74	2-25	0	39.72
1-55	0	50.08	2-24	2	39.16	2-24	1	39.58
1-57	0	49.23	2-30	3	37.20	2-18	2	40.86
1-56	0	49.65	2-32	1	37.50	2-24	1	39.58
1-52	2	50.35						
Av.		48.02			38.16			39.80
April 11, 1916								
1-58	3	46.94	2-26	2	38.63	2-22	1	40.14
1-55	1	49.56	2-21	4	39.14	2-21	0	40.85
2-07	0	45.85	2-37	2	35.92	2-15	0	42.66
1-55	0	50.08	2-10	1	43.84	2-15	0	42.66
2-00	2	47.00	2-31	2	47.35	2-13	1	42.85
2-07	2	44.40	2-16	1	41.91	2-23	2	39.44
2-03	1	46.34	2-26	5	37.39	2-18	2	40.86
1-49	1	52.30						
Av.		47.74			39.16			41.35
April 12, 1916								
1-58	2	47.79	2-25	3	38.48	2-22	4	38.87
1-57	1	48.71	2-15	2	41.71	2-11	1	43.51
1-48	1	52.77	2-22	0	40.56	2-10	1	43.84
2-08	1	44.53	2-34	3	36.23	2-16	0	42.35
1-56	1	49.15	2-36	7	34.23	2-25	2	38.62
1-50	1	51.81	2-12	8	40.00	2-17	0	42.55
1-54	0	50.52	2-26	2	38.63	2-15	1	42.22
2-04	1	45.16						
Av.		48.80			38.54			41.70

White Boys

81

1wb		2wb		3wb	
Time	Errors	M.P.M.	Time	Errors	M.P.M.
April 13, 1916					
1-56	1	49.13	2-25	2	38.62
1-58	1	48.30	2-17	2	41.16
1-53	2	49.91	2-20	2	40.28
1-48	0	53.33	2-40	4	34.50
1-50	0	52.36	2-30	4	36.80
1-46	3	52.64	2-03	2	45.85
1-53	0	50.97	2-09	7	41.39
1-40	2	56.40	2-06	2	44.76
1-43	0	55.92			
Av.		52.10		40.42	42.68
April 14, 1916					
1-48	0	53.33	2-19	1	41.00
1-39	1	57.54	2-00	3	46.50
1-41	0	57.02	1-49	1	42.30
1-42	0	56.47	1-54	7	46.84
1-49	0	52.84	1-53	4	48.85
1-49	0	52.84	1-49	2	51.74
1-56	0	49.65	1-50	2	51.27
2-02	1	46.72	1-53	1	50.44
Av.		53.30		48.61	44.38
April 15, 1916					
1-46	0	54.33	1-42	1	56.43
1-36	0	60.00	1-47	0	53.83
1-39	0	58.18	2-01	1	47.10
1-34	3	59.36	2-04	2	45.48
1-43	0	55.92	2-02	1	46.72
1-37	1	58.76	2-00	3	46.50
1-42	0	56.47	1-55	1	49.56
1-42	2	55.29	2-08	1	44.53
Av.		57.28		48.76	45.21
April 17, 1916					
1-49	0	52.84	1-53	2	49.91
1-52	1	50.89	1-57	4	47.14
1-42	0	56.47	1-49	3	51.19
1-45	0	54.85	1-59	2	47.39
1-36	1	59.37	1-57	5	46.61
1-49	0	52.84	2-00	0	48.00
1-45	0	54.85	1-54	2	49.47
1-45	1	54.28	1-49	2	51.74
Av.		54.54		48.93	44.43

White Boys

82

1wb			2wb			3wb		
Time	Errors	M.P.M.	Time	Errors	M.P.M.	Time	Errors	M.P.M.
April 18, 1916								
1-36	0	60.00	2-02	0	47.21	2-03	2	45.85
1-43	0	55.92	2-00	1	47.50	2-02	0	47.21
1-40	0	57.60	2-01	4	45.61	2-11	1	43.51
1-51	0	51.35	2-00	1	47.50	2-00	1	47.50
1-41	1	56.43	1-59	3	46.89	2-21	2	40.00
1-40	0	57.60	2-04	2	45.48	1-59	1	47.89
1-40	0	57.60	2-00	3	46.50	2-11	2	43.05
1-42	0	56.47	1-52	2	50.35	2-18	1	41.30
1-42	3	54.70						
Av.		56.40			47.13			44.53

April 19, 1916								
1-55	2	49.04	1-53	2	49.91	1-55	0	50.08
1-41	0	57.02	1-42	2	55.29	1-55	1	49.56
1-40	0	57.60	1-34	1	60.63	2-01	0	47.10
1-37	1	58.76	1-40	1	57.00	2-04	0	46.35
1-31	1	62.63	1-44	2	54.23	1-58	1	48.30
1-31	2	61.97	1-44	3	55.65	1-59	0	48.40
1-42	0	56.47	1-41	3	55.24	2-04	1	45.96
1-31	1	62.63	1-40	6	58.00	2-11	3	42.59
1-42	0	56.47	1-47	3	52.14			
1-38	0	48.77						
Av.		58.13			54.67			47.29

M.P.M.-marbles correctly
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UNIVERSITY OF MISSOURI
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DEPARTMENT OF EXPERIMENTAL PSYCHOLOGY

MAY 18 1916

Jean Walter Miller:

Dear Sir:

I have examined the thesis
submitted by Miss Emma Waltner
for the degree of Master of Arts
and approve it for this degree.

Respectfully
Max F Meyer

141601

This thesis is never to leave this room.
Neither is it to be checked out over-
night.

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