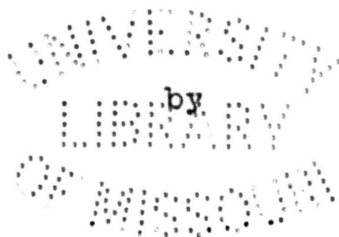




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25
THE PSYCHOLOGY OF THE NEGRO



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I

INTRODUCTION

The problems of race psychology have always been of absorbing interest. The existence of racial differences in intellect, morals and temperament is a matter of common observation among historians and anthropologists. It has always been regarded as obvious that those races which were most advanced in civilization were, in point of view of mental ability, distinctly higher than the others. And yet there are numerous instances in history, in which a barbarian race has taken on the forms of civilization and proven itself distinctly not inferior. No way of definitely measuring racial mental differences has been known until recently when, with the development of psychology, that science began to concern itself with individual differences.

In America where all races meet, the problem of racial differences is an important one for our educational theory and practise, as well as our social philosophy.

This is especially true in our Southern States, where there are vast numbers of white and colored children receiving the same instruction, both in content and in method. Are the mental characteristics of the two races similar enough to justify similar instruction, or would difference in instruction be more economical in effort and secure better results? The object of this investigation is not to answer this question, but to discover a few of the facts which have a bearing on it. To this end, an attempt is made to measure some of the basic mental functions of negroes by means of already established mental tests. No attempt is made to justify the use of these tests. Their limitations are evident, but their value has been proved by numerous investigations during the past few years.

Numerous books of a sociological and philosophical nature have been written concerning the negro. They are valuable, chiefly, as the opinions of men of considerable experience, and frequently of strong prejudices. The results of three investigations of negro psychology of some real value have been published. A brief review of these articles is given in this study.

To Mr. H. L. Cox, principal of the Douglass School, and to Miss. Finley, Principal of the Jefferson School, whose hearty cooperation has made the success of the tests possible, I am under special obligation; also to Mr G. E. Breece, who assisted in giving the mental tests in the white schools and in giving the physical tests.

II

PREVIOUS STUDIES IN NEGRO PSYCHOLOGY

A great deal has been written concerning the Negro in America. Most authors start out with a strong prejudice for or against the mental and social equality of negroes and whites and attempt by historical, sociological and anthropological or philosophical means to prove their own personal views to be true. There are very few open minded investigations of the question which aim only at the truth.

Only during the past year have the results of investigations into the mental ability of negroes of real scientific value been published. A brief review is given here of the three such articles which have appeared.

Morse, Josiah. A Comparison of White and Colored Children Measured by the Binet Scale of Intelligence*).

Miss Alice C. Strong, a graduate student of the University of South Carolina, measured with the Binet scale, as revised by Dr. H. H. Goddard 155 white children and 76 colored children of Columbia, S. C. "The same tests

*) Pop. Sci. Monthly, v.84, p.75; January 1914.

were given to both the white and colored children under practically uniform conditions, with the exception that some of the children tested were older than twelve years. The course of study in the colored school, which is a part of the public school system, is essentially the same as in the white schools, and the quality of teaching is good. The children seemed to be at ease in the presence of the white examiner, and to do their best. In almost every case the dress, cleanliness and manners of the children indicated that they came from good homes. No marked variation from the white children in the manner of responding could be noted."

"The results of this investigation upon white and colored children may be briefly summarized 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 advanced	0.8	5.3

The number of white children testing at age is decidedly larger than any other group, whereas for colored children the largest group is the one testing one year below age."

"The picture tests gave the colored children considerable trouble, probably due to difference in racial 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 absurd statements and to problems of various facts, were often absurd or senseless; the best replies, however, compare 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 (but not one was able to repeat 26 syllables), naming words, making rhymes and in time orientation. They are inferior to whites, however, in esthetic judgement, observation, reasoning, motor control, logical memory, use of words, resistance to suggestion and in orientation or adjustment to the institutions and complexities of civilized life."

"In order 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 is in turn 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 they are inferior throughout all the school years. "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 more nearly normal, the lightest show the greatest variation, both above and below normal."

In conclusion, the author says: " Negro children from six to twelve and possibly fifteen years are mentally different, and also younger than southern white children of corresponding ages, and this condition is partly due, at least, to causes that are native or racial." ✓

This investigation is a step in the right direction. It is an application of the methods of science to an

important human problem. But we would like to know what was the basis of selection of the 76 colored children and the 155 white children. The author says that the "dress, cleanliness, and manners" of the colored children indicated that they were from good homes. But how do they and the 155 whites compare with their school mates in class standing and mental ability? Who selected the children to be tested and was a random sampling obtained? How does the section of the city, in which these colored children live, compare with other sections of the city in which colored children live?

Baldwin, Bird T. The Learning of Delinquent Adolescent Girls as Shown by a Substitution Test.*)

The investigation was carried on in the girls' division of the Pennsylvania Reformatory School. The tests were completed by thirty-seven white girls and thirty negro girls, between the ages of thirteen and twenty one. Fourteen other negro girls were too feeble mentally to perform the tests after the initial instruction, altho^{ugh} they worked assiduously for three weeks. Three white girls failed to do 50 per cent. of the work correctly. The average age of the white girls was 16.7 years and of the negro girls 15.1 years.

"The negro girls are much slower to warm up to the occasion and are the first to drop back and lose interest. They are more difficult to enthuse, and can not be forced or easily stimulated, except temporarily through flattery. Their work is more irregular; some days they will do unusually well, but drop back to the old pace with no explanation, except to say that they are not feeling well. Their work is more largely controlled by moods. They are partially occupied with the task at hand and partially with a random activity, which consists of mumbling, grumbling, humming or saying original or funny things. The work of these girls is less in amount, less neat and less accurate. The marks are more irregular and many pay little attention to errors..... If an error is made

*) Journal of Educational Psychology IV:317, June 1913.

it is very likely to be carried regularly throughout the whole series..... The negro girls do not as a rule put as much effort into the work as the white girls, and there is apparently little rivalry among them, altho^{ugh} it was occasionally encouraged."

"Comparing the amount of work done by the thirty seven white girls with the work done by the thirty negroes who accomplished more than 50 per cent. of correct results, it is evident that the negroes are decidedly inferior. The white girls made 72.3 substitutions as a general average, the negroes 55.8. The negroes accomplished 62.4 per cent. as much work as the white girls and made 245.3 per cent. as many errors.

The author says: "Practically all the superior negroes in the school were included in the test"; but only thirty-seven of about 350 whites were included. Just what the basis of selection was is not stated. It is noticeable that the whites average 1.6 years older than the negroes. This difference of more than a year and a half in development ~~might easily~~ accounts for part of the difference in ability in the test.

This comparison of whites and negroes is, however, only a portion of the study, which is an investigation of the mentality of delinquent girls.

Mayo, Marion J. The Mental Capacity of the American Negro.*)

The precise problem whose solution is attempted in this study is a determination by a comparison of school marks of the relative efficiency in scholarship of the white and colored pupils in the high schools of New York. Working under as near identical conditions as anywhere existent, pursuing the same branches of study, being measured by the same standards of scholarship, and having previously received the same elementary and grammar school training a valuable opportunity is offered for a comparative study of the two groups of pupils.

The study is based upon a statistical treatment of school marks. All records which have been considered were taken from mixed schools in order that the measurement of the pupils might be obtained in terms of a single standard. Every colored pupil was considered whose record could be obtained. In choosing white pupils for comparison the rule for random selection was at all times carefully observed. Several different nationalities were included in the study: English, German, Irish, Italians and Jews. An effort was made to pair the individuals of each group at random on entering high school; and in any case only those were paired who had been in school the same length of time.

*) Archives of Psychology: no. 28.

The colored pupils represent a closer selection from the population by about four to one. Just what is the basis of selection, whether social standing or intellectual ability, is not known.

The average age of the pupils on entering school is: whites, 14 years 5 months; colored, 15 years 2 months. The median age of the whites is 14 years 6 months; of the negroes, 15 years 1 month. The A. D. of the whites is 9 months; of the negroes, 15 months. The greater age of the colored pupils on entering high school is probably due to retardation in the elementary school.

The colored pupils remain in the high school longer than do the whites. The average time of attendance for colored pupils was 4.5 terms, for whites 3.8 terms. This does not indicate the time required by each group for completing the course of study, but rather shows that the white pupils are more likely to quit school early than the colored pupils. Relative retardation and persistence in school seem to be characteristic of the colored group.

Of more importance than matters of age or attendance is the success of the pupil in school. The median mark of 150 white pupils in all subjects combined is 66; and of 150 colored pupils is 62. The passing mark is 60. 29 per cent. of the colored pupils reach or surpass the median mark for the white pupils. 73 per cent. of the

white group reach the median mark of the colored group. The A. D. of the colored group is 6.5; of the white, 7.7. The median deviation of the colored group is 5; of the white group, 5.5. The colored pupils being made up largely of crossings between races one might naturally expect a wider variability in the scholastic attainments of this group. The general impression among teachers is that colored pupils are less successful in their studies than are the whites ; but a difference of four points in class standing does not appear at all striking. The difference is indeed small as compared with their overlapping.

The colored pupils make relatively the poorest showing in English and the commercial branches, and relatively the best showing in mathematics --- especially in arithmetic and algebra --- and in the modern languages. Ancient languages, science and history fall in between these in the order named. The white pupils have an average higher standing in every subject. The percentage of colored pupils reaching the median mark of the whites in the several subjects is as follows: 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, history 31, ancient languages 27, science (first term) 39, science (all terms) 29, arithmetic (first term) 39, all subjects (all terms) 29.

During the first year in the high school the white pupils failed in 24 per cent. of their studies; the colored pupils, in 38 per cent.. For the second year, the white pupils fail in 23 per cent. of their studies; the colored pupils, in 48 per cent. The third year, the white pupils fail in 28 per cent.; the colored pupils in 49 per cent. For the fourth year, the white pupils fail in 14 per cent.; the colored pupils in 28 per cent. During the entire period the white pupils fail in 24 per cent. of all subjects pursued on first trial; the colored pupils fail in 42 per cent. of all subjects pursued on first trial.

Interpreting these figures as a measure of scholastic efficiency, the efficiency of the colored pupils is 76 per cent. of that of the whites.

The reports of superintendents of numerous city schools in Southern States where separate schools for the two races are maintained show that the average age of the colored pupils is always considerably higher than the average age of white pupils of the same grade. They also show that the percentage of colored pupils is relatively greater in the lower grades and relatively less in the upper grades than is the case with the whites.

"From all observations and measurements that have come under consideration, we arrive at the conclusion that, as regards the mental heredity of the negro and white races as represented in our northern

states, the average mental ability of the white race, so far as this ability is exercised in school studies, is higher, but not a great deal higher, than that of the colored race; and that, as regards the matter of mental variability, the white race is more variable, but not a great deal more variable than is the negro race."

The chief possibility of error in this study is in the selection of the representatives of the white pupils. The author writes: ".....if six colored pupils entered any high school at the opening of any term among a whole entering class, of, say, 400 pupils, then out of the 394 whites, six were selected at random, and the subsequent records of attendance and scholarship of the two groups were followed up and compared." Since all the colored pupils were considered, it would apparently have been a great deal more accurate -- altho^{ugh} a great deal more laborious -- to have considered all the white pupils as well.

Aside from details of method, there is the general consideration whether school progress is a good measure of comparative racial ability; that is, under actual present day social conditions. The negro has no pride of ancestry to spur him on; and a future, many of whose best things are apparently not for him, does not furnish great incentive to especial attainment. The author says: "The

general impression among teachers is that colored pupils are less successful in their studies than are whites." This impression may be partially due to racial prejudice, and this would in itself help to account for the negroes lower school standing. A really adequate test of mental capacity should eliminate the above factors. Hence what is needed is the measurement of mental traits directly by means of carefully supervised mental tests rather than the comparison of scholastic achievement of the different racial groups.

III.

THE TESTS

The tests used are those described in Pyle's The Examination of School Children. In addition four Ebbinghaus completion tests are used as described in Whipple's Manual of Mental and Physical Tests. These tests are selected for this study because they seem best for group tests, and because norms for white school children are available for all but the Ebbinghaus tests.

THE MENTAL TESTS

General Directions.-- The greatest of care was exercised to secure uniformity of procedure. When the teachers administered the tests, the procedure was thoroughly explained to them and understood before beginning a test. Wherever possible the tests were illustrated with material different from that to be used, and every effort was used to make sure that the pupils understood exactly what they were to do before beginning a test. Care was taken to see that there was no copying or cheating done. So far as possible the pupils were brought into the proper attitude toward the tests so that each would do his best. This was never difficult, as they usually considered the tests great fun.

Logical Memory

Object.-- The object of this test is to determine the child's immediate memory for ideas. It is a test of memory for meaningful material.

Method.-- Read the selection to be reproduced slowly and distinctly. After the reading, the pupils write down all of the story that they can remember. Let each pupil have sufficient time to write all that he can readily recall,-- but when each child has written all that can at that time be recalled, the papers should be taken up. Before giving the test, give the following instructions:

"I shall read you a story entitled The Golden Goose. You must pay careful attention as I shall read it but once. When I have finished take your pencil and paper and write as much of it as you can remember. If you can remember the exact words that I read use those words, but if you can't remember them, use your own words. Try to remember as much as possible and write down all that you remember."

Grading the Results.-- The child's written reproduction of the story is compared, unit by unit, with the story as divided below. Allow one credit for each idea or unit adequately reproduced.

Material.-- The following stories are used: The Golden Goose, The Two Ways, The Boy Who Would Not Drink, and The Brave Boy.

I. The Golden Goose

A man had three/ sons./ The youngest/ was considered silly/ because he was kind/ and gentle./ The oldest/ son cut wood/ in the forest/ and his mother/ always gave him a good lunch of cakes/ and wine./ One day/ as he was eating,/ a little/ old man/ came up/ and asked for something to eat/. But the young man/ harshly/ replied that if he gave food away/ he would have none left/ for himself./ Shortly afterward/ he began cutting down a tree./ He slipped/ and cut his arm/ badly./ The next day/ the second son/ went to the forest/ and he also had a fine/ lunch/ put up by his mother./ Again the little old man/ came/ and asked for something to eat./ The young man angrily/ told him to go away/ as he had no more than he wanted himself./ The old man/ went away/ but the selfish/ fellow/ had scarcely struck/ two blows/ with his ax/ when he cut/ a deep/ gash/ in his leg./ The next day/ the third son/ went to the forest,/ but his mother/ put up for him/ only some coarse/ bread/ and sour/ beer./ Again the old man came/ and asked for food./ The young man said/ that he had only some bread/ baked in the ashes/ and

some sour/ beer/ but that the man was welcome to a share of it./ As they began to eat,/ the bread turned to cake/ and the beer/ to wine./ The old man said: "Because you have been kind to me/ I will make you lucky./ There stands an old/ tree;/ cut it down/and you will find something good/ at the roots."/ The young man/ cut down the tree/ and found sitting at the roots/ a goose/ whose feathers/ were of pure/gold/. This brought him great/ good fortune/ and a princess/ for a wife./

II. The Two Ways

A man once/ got positions/ for two boys./ Afterward/ he was called to the police station/ to get one/ out of jail./ He went to the men/ who had hired the boys/ and inquired about them./ He learned that one boy/ when he came down to work/ before the regular hour/ stood on the curb/ till the last stroke./ The other/was always/ about a half-hour ahead of time/, working away./ The one always left work/ on the stroke of the minute./ The other/ never paid any attention/to the closing hour,/ until his work was finished./ The one growled/ and complained at the taske/ thrown upon him/ outside of the regular work./ The other/ did everything asked/ in a smiling way./ The one/ spent his evenings/ amüsing himself/ in the dance hall/ or nickel show,/ the other/ spent his evenings/ reading/ or studying/ about the different

parts of his business./ The one/ is on the road/ to success,/ the other/ is already a drinker/ and a gambler/ and is on the road/ to ruin./

III. The Boy Who Would Not Drink

An old/ sailor/ tells the following story/ of a boy/ who suffered/much/ in refusing to break a promise./ When ordered to drink,/ the lad said,/ "Excuse me;/ I would rather not."/ They laughed at him,/ but they never could get him to drink liquor./ The captain said to the boy,/ "You must learn to drink Liquor/ if you are to be a sailor."/ "Please excuse me,/ captain,/ but I would rather not."/ "Take that rope,"/ commanded the captain, to a sailor,/ "and whip the boy,/ that will teach him/ to obey orders."/ The sailor took the rope/ and beat the boy/ most cruelly./ "Now drink that liquor,"/ said the captain./ "Please, sir,/ but I would rather not."/ "Then go to the top of the mast/ and stay all night."/ The poor boy/ looked up into the sails,/ trembling/ at the thought of spending the night there,/ but he had to obey./ In the morning/ the captain/ looked up/ and cried,/ "Hello, there."/ There was no answer./ "Come down."/ Still no answer./ One of the sailors/ was sent up,/ and what do you think he found?/ The poor boy was nearly frozen./ He had lashed himself/ to the mast/ so that when the

ship rolled/ he would not fall/into the sea./ The sailor brought him down/ in his arms/ and they worked over him/ until he showed signs of life./ When he was able to sit up/ the captain poured out some liquor/ and said,/ "Now drink that."/ "Please, sir,/ I would rather not,/ because my father was a drunkard/ and I promised/ my mother/ when she was dying/ that I would never taste drink./ Do you want me to break/a promise/to my dying/ mother?"/ Tears/ came into the captain's eyes,/ and he said: "No, my boy,/ I shall never try/ to make you drink/ again."/

IV. The Brave Boy

Once there lived/ at Union Hill,/ New York,/ a boy/ 16 years old,/ named Frank/ Newman./ He was working for a company/ that was removing/ an old/ rail-road/ bridge./ ~~One day~~/ While at work/ going down a ladder,/ he slipped/ and fell/ 90 feet,/ bumping against rocks/ and timbers./ Some workmen/ picked him up/ and carried him/ to a house/ nearby,/ where a doctor/ attended him./ His left/ shoulder/ was broken,/ his right/ thigh/ was twisted,/ and his whole/ body/ badly/ bruised./ He refused/ to take chloroform/ and while the doctor/ worked on him/ he sang./ He would not go/ to the hospital/ but was taken / to his own/ home/ where he will probably/ get well./

Permanent Logical Memory

Object.-- The object of this test is to determine the child's memory for ideas after a considerable interval of time.

Method.-- Present the selection to be reproduced as described for immediate logical memory. After an interval of 30 days, ask for a written reproduction of the selection. When the selection is read to the pupils, they are not told that they are going to be called upon later for a reproduction of it.

Grading the Results.-- The child's written reproduction of the story is compared, unit by unit, with the story. Allow one credit for each idea or unit adequately reproduced as in immediate logical memory.

Material.-- The same as for immediate logical memory.

Rote Memory

Object.-- The object of the rote memory test is to determine the immediate memory of the pupil for unrelated impressions. It tests merely verbal memory for discrete impressions. A high relative standing in this test probably indicates ability in studies which demand simply verbal memory; i.e. in such work as learning spelling, tables, formulas, dates, and all similar material.

Method.-- There are two lists of words, concrete and abstract, with six groups in each list. The concrete words are given first. The first group should be pronounced and the children given time to write the words. Then the second group should be given, and so on until the six groups of concrete words have been pronounced. Then the abstract words should be similarly given. The teacher should say:

"I shall pronounce to you a number of words, one group at a time. There are three in the first group, but more in the others. As soon as I have pronounced a group of words, you may write them down. Try to remember them in the same order that they are given. If you can not remember some words, leave their places blank and write in the proper places the words you do remember."

Before beginning have the pupils prepare blanks as follows:

Concrete	Abstract
1.	1.
2.	2.
3.	3.
1.	1.
2.	2.
3.	3.
4.	4.
etc.	etc.

Method of Grading.-- The work is to be graded not only on the basis of memory for words but also for their positions. A word remembered counts one point, and its correct position, one point. The word in its correct position, therefore, counts two points. If the three words in the first group are remembered and put in their proper order, they count for six points, etc. A perfect score would be 66 points for the concrete list and 66 points for the abstract list.

Material.-- The following words:

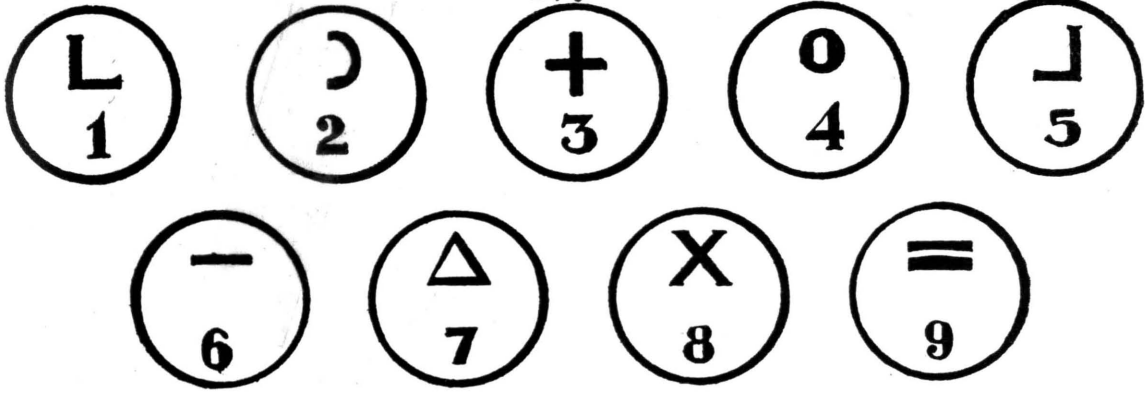
Concrete	Abstract
1. street, ink, lamp	1. time, game, scheme
2. spoon, horse, chair, stone	2. grade, fact, work, thing
3. ground, clock, boy, chalk, book	3. pluck, love, blame, fear, proof
4. desk, milk, hand, card, floor, cat	4. space, force, pride, fright, joy, size

- | | |
|--|--|
| 5. ball, cup, glass, hat,
fork, pole, cloud | 5. length, light, style , rate,
cause, youth, hate |
| 6. coat, girl, house, salt
glove, watch, box, mat | 6. law, thought, plot, glee,
life, call, price, strength |

The Substitution Test

Object.-- The substitution test is a test of quickness of learning. It determines the speed with which a person can build up new associations. It is in part, of course, a memory test, but it is more. In a memory test, the material is presented but once; in this test, by repeating the same impressions over and over, we determine how fast the pupil can build up habitual connections.

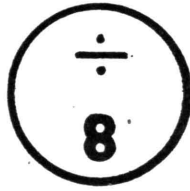
Method.-- The pupils are provided with the proper forms (pp.) and instructed to fill in the blanks according to the key at the top of the page of the test sheet. In distributing the sheets, place them face down on the desks. Have the pupils begin at the same time. Allow eight minutes in grades up to the fourth and five minutes in grade five and above. (In the experiment with the sixth grade described later, the pupils were allowed five minutes in each of the first two trials, four minutes for the third trial and three minutes for the fourth trial). Before beginning the test the teacher should explain by means of a blackboard diagram just how



84,976						27,516					
79,821						33,821					
63,442						97,473					
21,629						62,978					
57,183						31,542					
32,761						17,143					
95,146						26,981					
28,349						35,724					
73,862						16,315					
91,563						14,923					
37,628						34,762					
42,916						28,543					
23,729						83,936					
85,652						75,314					
35,486						56,283					
29,635						19,175					
72,518						36,293					
24,631						85,746					
19,852						15,283					
76,431						24,976					

Name ----- Date -----

Sex ----- Age ----- Grade -----



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Name _____

Date _____

Sex _____ Age _____

Grade _____

the experiment is to be performed. The instructions should be:

"In the circles at the top of the sheet before you, are written nine digits and nine symbols which are to be written in the blank squares below for the digits to which they correspond. Work as fast as you can and try to fill as many of the squares as possible, without making mistakes."

In the symbol-digit test, say:

"In the blank squares below, you are to write the digits which correspond to the symbols."

Method of Grading.-- Count each square correctly filled one point, and determine the speed per minute by dividing the number of squares correctly filled by the number of minutes spent in filling them. A perfect score would be 200 points. If the test were done in eight minutes, the grade of the pupil would be 25. If the test were done in five minutes, the grade would be 40.

Material.-- For material, use the Whipple digit-symbol and symbol-digit test sheets.

The Word-Building Test

Object.-- This test determines the pupil's ingenuity in constructing words, using certain prescribed letters. The ability tested is a type of inventiveness and is by no means simple,-- memory, attention, association, and ideational type are doubtless involved.

Method.-- The pupil is given the letters a,e,o, b,m,t, and told to make as many words as possible in five minutes. For a second test, use the letters a,e,i,r,l,p. The words must be real English words, no word must contain a letter not in the list, and no letter must be used more than once in the same word. After explaining the test, pronounce the letters to be used and at the same time write them on the blackboard. The pupils should copy the letters, writing them at the top of the sheet on which they are to write their words. The instructions should be:

"I wish to see how many words you can make in five minutes using only the letters I give you. The words must be real English words. You must use only the letters I give you and do not use the same letter more than once in the same word. You do not, of course, have to use all of the letters in each word. A word may contain only a part of the letters."

(For additional tests use the letters: I. o,e,u, b,n,r, II. a,e,i,c,h,s, III. a,e,u,n,t,r, IV. a,e,o,l,p,m).

Method of Grading.-- The grade is the number of words that do not violate the rules of the test.

The Association Tests

Object.-- The object of the association tests is to determine the quickness of the association processes. In the uncontrolled or free association test, the pupil is started with a word and then he writes as fast as possible the other words that come into his mind. No restriction is put upon the subject; he writes whatever comes into his mind. The test is a criterion of the rapidity of the flow of one's ideas when no limitation is put upon this flow. While the results would be more accurate if the subject merely spoke the words as fast as they came to mind, nevertheless, it gives a high degree of accuracy when the pupils write the words, and it is not possible to have the words spoken when the test is given as a group test.

In the controlled association tests, -- opposites, genus-species and part-whole tests, -- a limitation is put upon the flow of ideas. The subject is not to write any word that may come to mind, but only words that satisfy certain conditions; i.e. a word that is the opposite, that is of a lower order, that names a whole of which the word names a part. The association tests are of great importance in mental diagnosis, for they test functions that are at the basis of the reasoning process. When a

person is given a problem to solve, he is given a test in controlled association. The problem starts the flow of ideas and puts the limitation upon this flow. The problem is solved only if the right ideas come. Of the three controlled association tests, the opposites test gives the most significant results, probably only because the conditions of the test are more readily understood by the pupils than are the conditions of the other two tests. These association tests, if carefully given, and especially if several tests are given, are among the most valuable of all the tests.

Free Association

Method.-- The pupil is given the following instructions:

"I wish to see how many words you can think of and write down in three minutes. I shall name a word, you may write it down and then write all the other words that come to your mind. Work as fast as you can."

Be sure that the test is understood. See that the pupils have paper ready. Give them the word play and start the stop watch.

Method of Grading.-- The grade is the number of words written. This test furnishes valuable material for studying association from the qualitative point of view; the words written by a pupil give some idea of his past

experience. This aspect of the test has not been considered here.

(For additional tests start the pupil with the words cloud and dog).

The Opposites Test

Method.-- The pupil is provided with a printed slip containing the twenty words. These test slips are placed face down on the pupil's desk and the following instructions given:

"You have on these slips of paper twenty words. I want you to write after each word another word that has the opposite meaning; that is, a word that means just what this word does not mean. For example, if one word were far, you could write as its opposite near."

Be sure the pupils understand. Then have them take hold of the test slip, and at the signal, turn it over. At the same instant start the stop watch. Allow 60 seconds in grades three and four, 45 seconds in grades above.

Method of Grading.-- The grade is the number of words correctly written reduced to speed per minute. Some of the words have more than one meaning, so credit is allowed for the opposite of the word in any of its meanings.

Material.-- Use printed slips containing the following words with space to the right for writing the opposites.

I.	A	B	C
1. good	1. long	1. north	1. best
2. outside	2. soft	2. out	2. weary
3. quick	3. cheap	3. sour	3. cloudy
4. tall	4. far	4. weak	4. patient
5. big	5. up	5. after	5. careful
6. loud	6. smooth	6. guilty	6. stale
7. white	7. early	7. clean	7. tender
8. light	8. dead	8. slow	8. ignorant
9. happy	9. hot	9. large	9. doubtful
10. false	10. asleep	10. true	10. serious
11. like	11. lost	11. dark	11. reckless
12. rich	12. wet	12. front	12. join
13. sick	13. high	13. love	13. advance
14. glad	14. dirty	14. ugly	14. honest
15. thin	15. east	15. open	15. gay
16. empty	16. day	16. summer	16. forget
17. war	17. yes	17. new	17. calm
18. many	18. wrong.	18. come	18. rare
19. above	19. empty	19. male	19. dim
20. friend	20. top	20. failure	20. difficult

The Genus-Species Test

Method.-- The method of giving this test is the same as for the opposites test. The instructions should be:

"You have before you a slip containing twenty words. These words are class names. I wish you to name an example or species under each class. For example, if one word were food, you could name bread, or if one word were clothing, you could write coat, etc."

Method of grading.-- The grade is the number of words correctly written reduced to speed per minute. A word is correct, if it really names a species under the genus named by the word of the list.

Material.-- Use printed slips containing the following words:

- | | | | |
|--------------|------------|-------------|-----------|
| 1. mountain | 6. machine | 11. ocean | 16. food |
| 2. city | 7. author | 12. fruit | 17. lake |
| 3. weed | 8. planet | 13. country | 18. tool |
| 4. metal | 9. river | 14. animal | 19. fish |
| 5. furniture | 10. book | 15. bird | 20. money |

The Part-Whole Test

Method.-- The general procedure for this test is the same as for the two preceding tests. The instructions should be:

"The slip before you contains twenty words, each of which names a part of something. I wish you to write after each word a word which names the whole of the thing. For example, if one word were wheel, you could write engine. If one word were toe, you could write foot, etc."

Method of Grading.--- Grade as in the two preceding tests.

Material.--- Use the words in the list below.

- | | | | |
|-----------|---------------|-----------|--------------|
| 1. window | 6. smokestack | 11. page | 16. sail |
| 2. leaf | 7. eggwheel | 12. cob | 17. coach |
| 3. pillow | 8. cover | 13. axle | 18. cylinder |
| 4. button | 9. letter | 14. lever | 19. beak |
| 5. nose | 10. petal | 15. blade | 20. stamen |

The Ink-Blot Test

Object.--- This test has been called a test of imagination, and it is a test of an aspect of imagination; but it seems to test much the same sort of ability as do the association tests. It tests the quickness of the association processes. The child has placed before him an ink-blot; the time required for this blot to suggest anything is measured.

Method.--- The ink-blots are distributed, one set to each pupil, and placed face up on the desk, the top blot being covered with an opaque square of paper the same size as the blots. The instructions are as follows:

"You have before you 20 cards, each of which has on it an ink-blot. When I give the signal to begin, you are to remove the paper on top and write down as quickly as possible what the blot suggests. Then go

on to the next, and so on as fast as you can until the time is up. You will probably not have time to finish all, but you must work as fast as you can. If you come to a blot that suggests nothing to you, do not spend all your time on it but go on to the next blot. Of course these blots are not really meant to look like anything in particular but they will suggest things, as clouds sometimes do."

Allow three minutes for the test. The blots should be placed with the number on the card turned toward the pupil, and the pupil, in looking at the card, should keep it in this position and not turn it around into other positions. Many pupils do so in trying to discover what the blots are really intended to represent, in spite of the definite statement in the instructions that the blots are intended to represent nothing in particular.

Method of Grading.-- The grade is the number of blots for which names of objects are written.

Material.-- The Whipple ink-blots and three similar sets.

The Cancellation Test

Object.-- This test has been called an attention test, a quickness of perception test. It certainly does test quickness of perception and discrimination and, to some extent, quickness of reaction. It seems to have no very close relation to general intelligence. Further study may reveal a relation between abilities tested by this test and some aspect of the learning process.

Material.-- Use the printed sheets beginning hplg.

Method.-- Distribute the sheets and allow the children to look at them, then have the sheets turned face down upon the desks. Give the following instructions:

"You have before you a sheet printed with all the letters of the alphabet placed close together and in no definite order. You are to take your pencil and draw a line through all the a's you can in the time allowed. Do this by making a little vertical stroke through every a. Work as fast as you can without omitting any a's, and you must not cancel any other letter."

Then give the signal and begin. Allow two minutes in grades three and four, 90 seconds in grades above.

(e, i, o, u may be cancelled as additional tests).

Method of Grading.-- The grade is the number of a's marked per minute.

hplgvjembsfgtcdvmzkhfpoiabgjflureqihdjoabfkvt
 ndefxkjcdtmwfwzeojqlfhycijwpzhkeqfvzlsxfpvryj
 mxniufktvxpyralkjowqfvpystexralpbicrdjfuqzihg
 pskdamolgyqwepxkasdihogmekftshbdrpvxqufsib
 tohxwaklbvxzfoearlsjvqfuoltdapqevkmtpuodszejwg
 xfvozpqrbeftkxrvjybuacdsbumehredxygjwhblft
 yekdwzvxbpokwizyedgowacpkmjrhltoidaxkhwz
 ytejscqioxlhtfayubltrezpwmslbjgevxiwoybhazfkm
 tndrbuclmteazyjgivputwohsifzyqrhlnajozptqkba
 msofcvukbijpeyfaoujzmlkrvxptendsoaljyrbevzsgu
 yknbcfgzjprinckdfgawulcrkgdfuiqkaczymbdlxfqokz
 nwujgredlzupnjxgdfzemojndxcuizwbjqdghvusiogd
 zbuecgtppkuwljorbkspwujtoebnmwadfsvnkubrojw
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 xmplhfdoqcretbmivlcdnfhqkpxoasvyntxwbqpfhvn
 ekdzjrylqamsptkgzonieusyprnqzsvtuygfkpzsndt
 vkbpasynjxhobuywqzcljgyrovdmuqkfxihyvgaj
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 rtmhlciqagnyrtcljhnrbmqepglcsmrwxpcqztbaksn
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 iymgdwrakivqyselwdfikuhvsgdcimwopvqkinudwr
 htlvxsizcldqwpjuzraehwivsrmyubevpnigoqsmvzer
 uysmxanigzveqxrpwosultxzu jwgakmehleynbkpw
 oahyispktgcmuqzsejiucodrhesbgufmxopnqckegmu
 xatkojhbeavupsrmtxqwk hbcoryuaqhimgzkwbjqria
 ldevcbtqnwlxdrz fecgrpinajhtqkyiwmucgolkebam
 qrgnvjswhdexcormuplhruzetwblhcgtrjamlfhycxr
 bovdnyhejilavcfonyhxjatzwguhjfmowbpxhtsdfvep
 wimngsaecutjqlwhrftypdosk.

Name.....

Date..... Sex.....

Age..... Grade.....

The Completion Tests

Object.--- Ebbinghaus says that mental ability requires the ability to combine into a coherent and significant whole, mutually independent and even seemingly contradictory impressions. To measure intelligence, therefore, we must employ a test that demands ability to combine fragments or isolated sections into a meaningful whole. Such a test may be afforded by mutilated prose, i.e. by eliding letters, syllables, words and even phrases from a prose passage and requiring the subject to restore the passage to a satisfactory equivalent of the original.

The test is difficult to classify psychologically. If the elisions are numerous, it may become a test of active or creative literary imagination; if the elisions are but few, it may become a test of controlled association of any desired degree of ease. If the story is first read to the subject, it becomes in the main a test of associative recall, i.e. a form of memory test.

Method.--- Distribute the prepared sheets to the pupils. Say to the pupils:

"You have before you a sheet of paper with a story printed on it. But some of the words are left out. Everywhere there is a blank space to show that a word or part of a word is left out, I want you to write in the word

that you think ought to be there. Put in a word that will make good sense and that will make a good story when you are through. Use just one word for each blank. If you come to a blank that you can't find a good word for, don't waste all your time on it but leave it and go on to the next one."

Illustrate what is to be done with a previously prepared passage of history or literature with which the pupils are familiar. Allow reasonable time for every one to finish, but take up the papers as soon as finished.

The story Why the Mole Is Blind is read to the pupils before they try to fill in the blanks for it, thus introducing a memory feature.

Method of Grading.--- Allow one point for every blank filled in so as to make good sense.

Material.--- Use mimeographed sheets with the following stories: The Strength of the Eagle, Why the Mole Is Blind, Where the Dandelions Went, The Donkey and the Grasshopper. These stories are given below. The underlined words or syllables are omitted in the blanks, (except the title),

I. The Strength of the Eagle

One day the eagle went with the other birds to see which could fly the highest. They agreed that he who could fly the highest should be called the strongest bird. All started at the same time and flew away among the clouds. One by one they grew weary and returned, but the eagle flew upward and upward until he was a mere speck in the heavens. When he came back the others were waiting for him; and when he touched the ground a linnet flew off his back, where he had been hidden, and said that he himself was the strongest bird. "I am stronger than the eagle," said the linnet, "for not only did I fly as high, but when he began his downward flight, I left my hiding place and flew up a little higher." At this boastful speech the others shook their heads and called a council to decide the matter. After a long debate, they decided that the eagle was the strongest bird, for not only did he fly so high, but he carried the linnet as well.

To this day the plumes of the eagle are emblems of strength and courage.

II. Why the Mole Is Blind

An Indian once chased a squirrel into cloud land. Then he set a trap for him, laughing to think how he would catch him. The squirrel did not come back, but alas! the sun on his daily rounds fell right into the trap.

When the bright sunlight did not come, the Indian began to be uneasy, and when he found his trap had the sun fast he did not know what to do.

He tried to get near enough to loosen the cords, but the heat from the sun scorched him and he gave it up. Then he coaxed many animals to try it, but they all found the sun too hot. At last the mole said: "I will dig through the ground under the trap and so get at the cords."

This he did and the sun leaped up into the heavens.

But it went so quickly that the poor mole could not get away, and the heat of the sun put out his eyes.

Since then the moles have had to live in dark places and unless one looks very closely he can not find their eyes.

III. Where the Dandelions Went

When Willy was two years old, he lived in a red farm-house with a yard in front of it. The dandelions were very thick there; so that the yard looked yellow instead of green.

One bright day Willy's mama put on his straw hat and sent him out into the yard to play. She knew the yard had a high fence; and Willy could not open the gate; so he was safe. When it was time for him to take his nap and she went to call him, she noticed that a great many of the dandelions were gone. She wondered where they were; but, as Willy could not talk much, she did not ask him about them.

A short time after, while he was asleep in his crib, his mama went out to draw some water. When the bucket came up full of water, the top was all yellow with dandelions. Looking down into the well, she could see no water at all, only dandelions.

It was no wonder, then, where the blossoms had gone, Willy had been very busy, trying to fill up the well.

IV. The Donkey and the Grasshopper

Once upon a time a donkey heard a grasshopper chirruping in the grass. Ah, he said to himself, if I sing like that, how happy I should be. So he bowed low to the grasshopper and said, "Kind friend, what food do you eat to make your voice so sweet?" "I drink the evening dew", replied the grasshopper. The foolish donkey tried to live on the same kind of food.

THE PHYSICAL TESTS

The correlation between mental and physical development has already been established beyond doubt. It is therefore very important that physical measurements and tests be made along with mental tests. The most significant physical measurements are measurements of weight, height, vital capacity, muscular strength and muscular speed.. Because of lack of time only the last two, muscular strength and muscular speed, were tested in this study.

Muscular Strength

Material.-- For this test a Smedley dynamometer is used. The hand-piece should be adjusted to fit the hand of the pupil.

Method.-- The pupil takes the dynamometer in the hand and holds it by the side but not touching the body; He then squeezes the hand-piece as hard as possible and releases his grip. Read the record on the indicator. Three trials should be given and the best record taken. Try first with the right hand and then with the left, and alternate till each hand has had three trials. The trial with one hand should not be too prolonged, but one good hard grip given and then the instrument released. Be careful to see that the child does not touch his body with his hand nor use both hands at once.

Muscular Speed

Material.-- A tapping board and an electric counter.

Method.-- The pupil is instructed to take the stylus in his hand and tap as fast as possible. Speed, not hard tapping is required. Take the record first with the right hand and then with the left. The record is for a thirty second test.

IV

MENTAL NORMS FOR WHITES AND NEGROES

The object of this study is to establish age norms for the various mental abilities for the negro school children and to compare these age norms with similar norms already established for white school children. In this way a definite knowledge of racial mental differences can be obtained. By extending the study to include the white school children of Columbia, a means is had for comparing the races by school grades.

The tests were given in the Columbia, Mexico and Moberly colored schools and in the Columbia white schools. The number of negro children tested is 408; 260 in the Columbia school, 85 at Mexico and 63 at Moberly. 85 of the pupils are in grades 8, 9 and 10; the others are in grades 3 to 7. (The tests were not given below the third grade because the pupils in the lower grades have not sufficient facility in writing to make the tests of any value). Every pupil who was present at the time any test was given is considered in the averages for that test.

The tests in the Columbia schools were given in the afternoon in all grades at the same time, the teachers giving the tests. They were given in the white and negro schools on the same days. The order in which the tests were given is as follows: Oct. 1, logical memory --"The Brave Boy"-- and word-building --a,e,o,b,m,t and a,e,i,r,l,p-- : Oct. 3, substitution --one digit-symbol and one symbol-digit test--, cancellation -- "a" test--, controlled association --opposites IV, genus-species, part-wholes--, rote memory --concrete and abstract words--, free association; Oct. 10, the ink-blot test; Nov. 4, permanent retention for "The Brave Boy". On November 20 the tests were given in the Mexico colored school and on January 8 in the Moberly colored school. In these two schools the tests were given by the experimenter.

The attitude of the teachers and pupils toward the tests was good. All seemed to consider the tests great fun and worked hard to make a good record. The tests given at Mexico and Moberly by the experimenter furnish a means of checking the tests given at Columbia by the teachers. There is no material difference.

The test papers from the negro schools were all graded by the experimenter; those from the white schools in Columbia were graded by advanced students in educational psychology.

The results of this study are given in tables I to XIII. Tables I to VIII give the age norms for the negro children in each test. Tables IXa and IXb give the norms for white school children as given in Pyle's "The Examination of School Children". (In the case of logical memory a different story was used. The norms for white children in logical memory are computed from the tests given the white children in Columbia). Table Xa summarizes the norms for the colored children. In order that each test should have about the same bearing in the averages, the figures in this table have been modified as follows: For substitution, add the results of the two tests and take three fourths. Logical memory is the same as in the original tables. The concrete and abstract rote memory grades are added and divided by two. The cancellation grades are doubled. The three grades in controlled association are added together. The two grades in invention are added together. Free association is the same as in the original tables. Table Xb is a similar table for white children taken from Pyle's "Examination of School Children". Table XI compares the whites and negroes in each test, all ages combined. The norm and average deviation for whites and negroes, the per cent. of difference between the norms for whites and negroes, and the per cent. of

difference between white boys and white girls and negro boys and negro girls^{are given}. Table XII summarizes the difference between whites and negroes and between boys and girls. The figures in each column are the per cent. of difference in favor of the whites or negroes, or boys or girls as the case may be. Tables XIIIa and XIIIb compare the whites and negroes by grades for the grades three to seven. Before combining the tests of this table, the figures are modified as follows so that each test will have about the same bearing in the averages: Free association, rote memory and immediate logical memory are divided by two. Controlled association (opposites) is multiplied by one and one half. The ink-blot test is multiplied by two. Cancellation, substitution and permanent logical memory are unchanged.

The graphs on pages 85-104 represent tables I to Xb and XIIIa and XIIIb. Age or school grade is shown on the horizontal axis and standing in the test on the vertical axis. Green ink is used to represent the whites and black ink to represent the negroes. Broken lines represent girls and solid lines, boys.

We will now consider each test separately and see what racial differences are discoverable.

Immediate Logical Memory.-- (Tables I, IXa, IXb, XI, XII; graphs 1 & 17). Comparing whites and negroes by ages, the ^{white} girls are at all times superior to the negro girls. The negro girls most nearly approach the whites at 14 years. The white boys are superior to the negro boys at all ages except at 14. The difference between whites and negroes grows slightly less with increase in age. The per cent. of difference between white and negro boys is 21.1 ~~per cent~~ and between white and negro girls is 27.1 ~~per cent~~. The white girls surpass the white boys by 7.7 per cent. and the negro girls surpass the negro boys by 2.6 per cent. The difference between white and negro girls is greater, in this test, than the difference between white and negro boys; and the difference between white boys and girls is greater than between negro boys and girls. Just the reverse is true in the general average, (XII).

In the third grade the difference between whites and negroes and between boys and girls is very slight (graph 17). The negro girls are superior in the fourth grade and both negro boys and negro girls are superior in the seventh grade. (In comparing grades, it must be borne in mind that the negroes are 6 to 17 months older, grade for grade, than the whites). Averaging all the grades, the whites are slightly superior (XIIIa, XIIIb).

The graphs on the following page compare the white school children of Columbia with the negro school children of Columbia, Mexico and Moberly in logical memory. The number of children is 275 white girls, 259 white boys, 204 negro girls and 141 negro boys. Height above the base line of the graph represents the per cent. of the whole number of children tested who attain to a certain per cent. (shown horizontally on the base line) of the norm. Age norms as obtained from Columbia whites are taken as the standard.

Most negro boys are within 70 to 90 and 90 to 110 per cent. of the norm. Most white boys are within 110 to 130 per cent. of the norm. 65.3% of the white boys and 42.6% of the negro boys make more than 90% of the norm.

Most negro girls are within 70 to 90 and 90 to 110 per cent. of the norm. Most white girls are within 90 to 110 and 110 to 130 per cent. of the norm. 61.7% of the white girls and 41.9% of the negro girls make more than 90% of the norm.

In general, more negroes than whites make a small per cent. of the norm and more whites than negroes make a large per cent. of the norm.

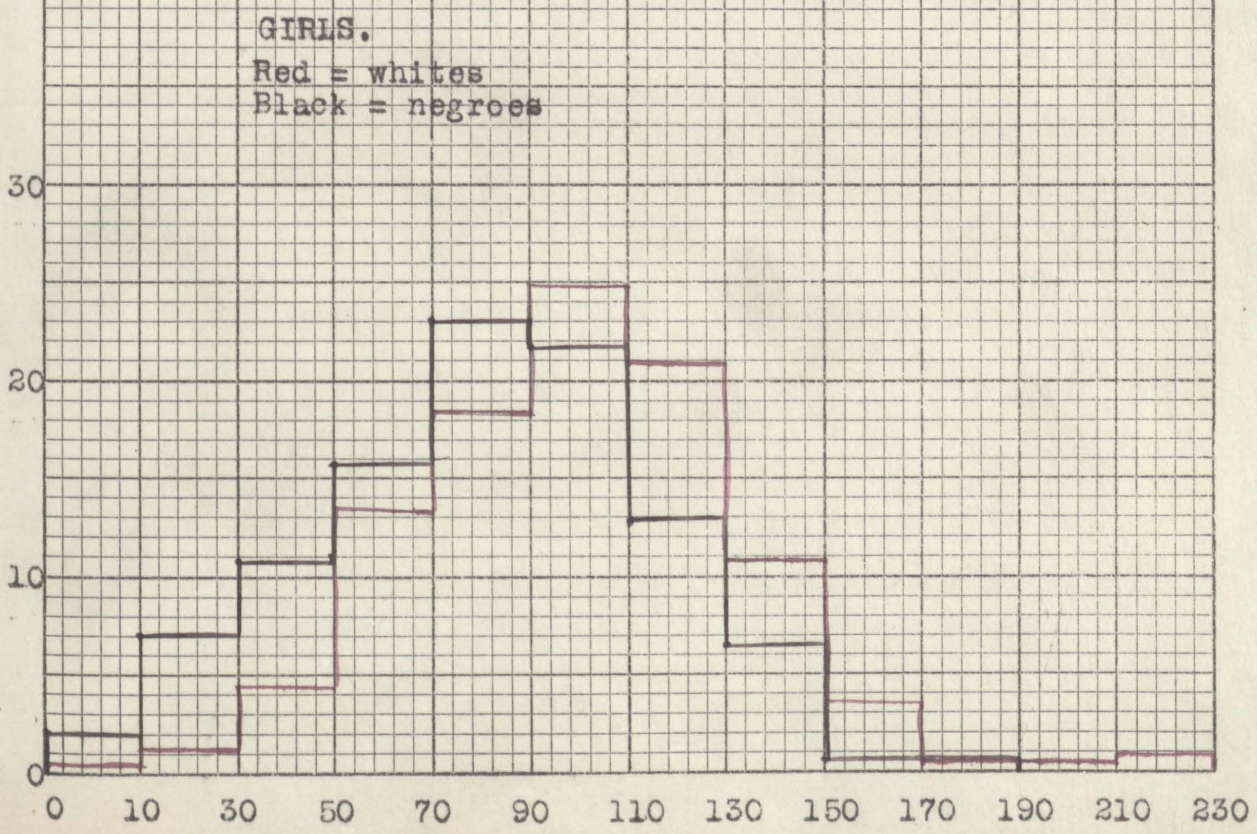
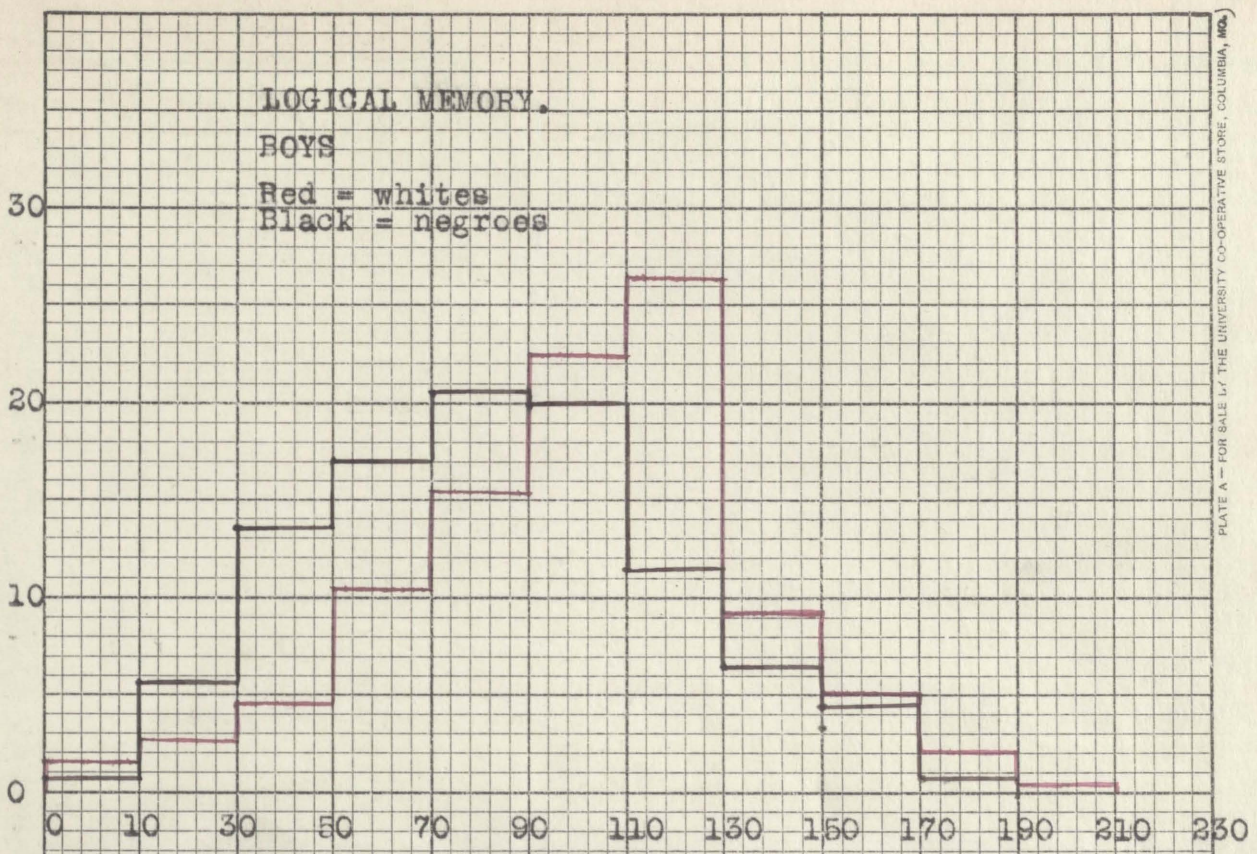


PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

Permanent Logical Memory.-- (Tables I, XI, XII; graphs 2 & 18). The curves for permanent logical memory are very irregular. The whites are at all times superior to the negroes except at 12 and 15 years for the boys and at 15 for the girls. The best comparison in this test is the average of all ages. The white boys' average is 10.8, A.D. 4.8; the negro boys' average is 9.5, A.D. 5.0. The difference in favor of the whites is 13.7 per cent. The white girls' average is 11.7, A.D. 5.0; the negro girls' average is 9.3, A.D. 5.1. The difference in favor of the whites is 25.8 per cent. The white girls excel the white boys by 8.3 per cent, but the negro boys excel the negro girls by 2.2 per cent.

Comparing the school grades, there is not much difference in the third grade, in the fourth grade the negroes excel the whites and are inferior in the other grades.

The whites retain ~~an~~ actually less ~~amount~~ after 11 years for the girls and 13 years for the boys and there is a loss in amount retained between the sixth and seventh grades. The negro girls retain a less amount after 11 years and the negro boys a less amount after 12 years. The negroes retain most in the fourth grade. The whites retain most in the sixth grade.

✓ Rote Memory.-- (Tables II, IXa, IXb, XI. XII; graphs 4, 5 & 22). In rote memory for concrete words, the white children are at first very much ahead of the negroes, but at 15 and 16 years for the boys and at 16 for the girls the negroes are superior. In rote memory for abstract words, the curves are very much the same; the negroes, however, do not quite equal the whites at any age. In memory for concrete words the white boys are superior to the negro boys by 27.6 per cent, in memory for abstract words, by 59.4 per cent. In memory for concrete words the white girls are superior to the negro girls by 20.4 per cent, in memory for abstract words, by 43.2 per cent. In memory for both concrete and abstract words, there is more difference between negro boys and negro girls than between white boys and white girls. The per cent. by which memory for concrete words exceeds memory for abstract words is for white boys 19.1 per cent, for negro boys 48.7 per cent; for white girls 18.9 per cent, for negro girls 41.5

✓ In every school grade tested the whites are superior to the negroes in rote memory and the degree of superiority is about the same for each grade.

Substitution.-- (Tables III, IXa, IXb, XI, XII, XIIIa, XIIIb; graphs 6, 7 & 19). The negroes do not equal the whites in either of the substitution tests. The difference is considerable and is about the same for all ages. The 8 and 9 year old negroes do almost nothing with the test; they make only a very small number of substitutions and many errors. Both whites and negroes make slightly more substitutions in the symbol digit than in the digit-symbol test. The absolute difference between whites and negroes is about the same in the two tests, although the per cent. of difference is less in the symbol-digit test. In the average of the two tests, the whites are superior to the negroes by 111.9 per cent. for the boys and 118.1 per cent. for the girls. The white boys are inferior to the white girls by 15.9 per cent.; the negro boys are inferior to the negro girls by 13.6 per cent.

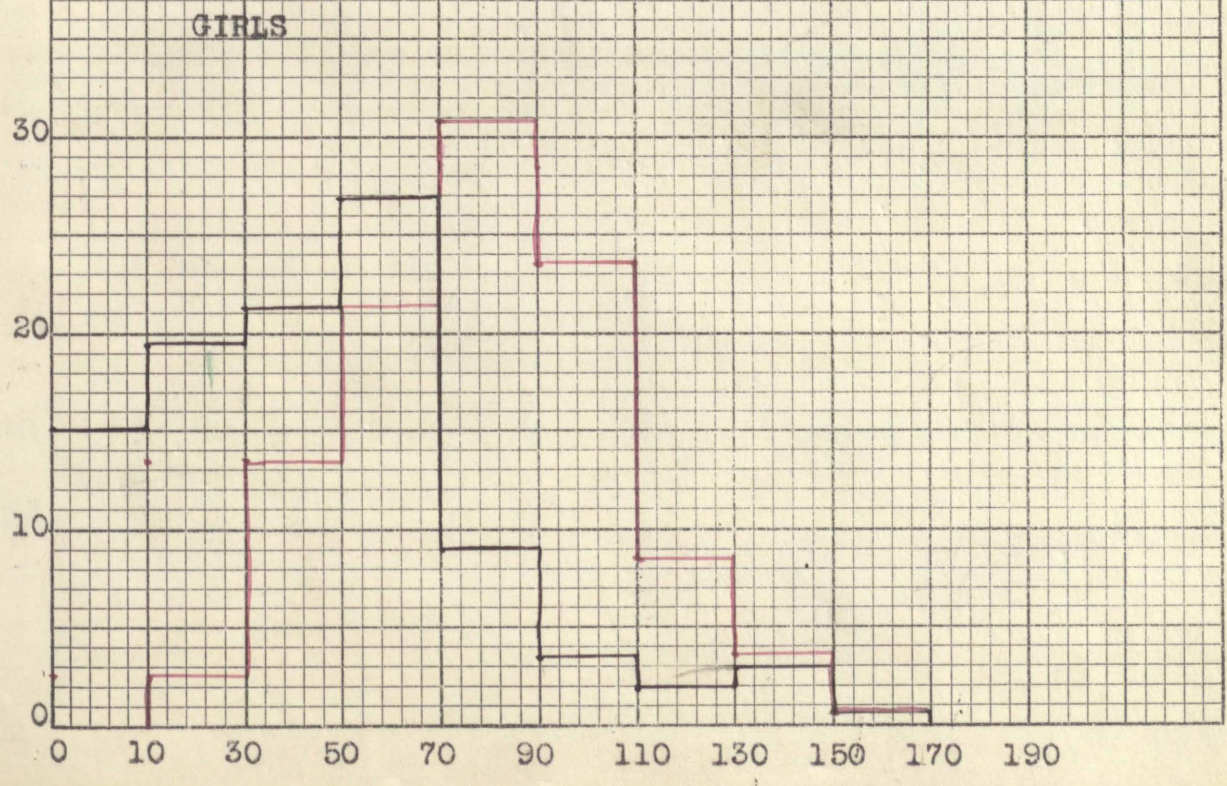
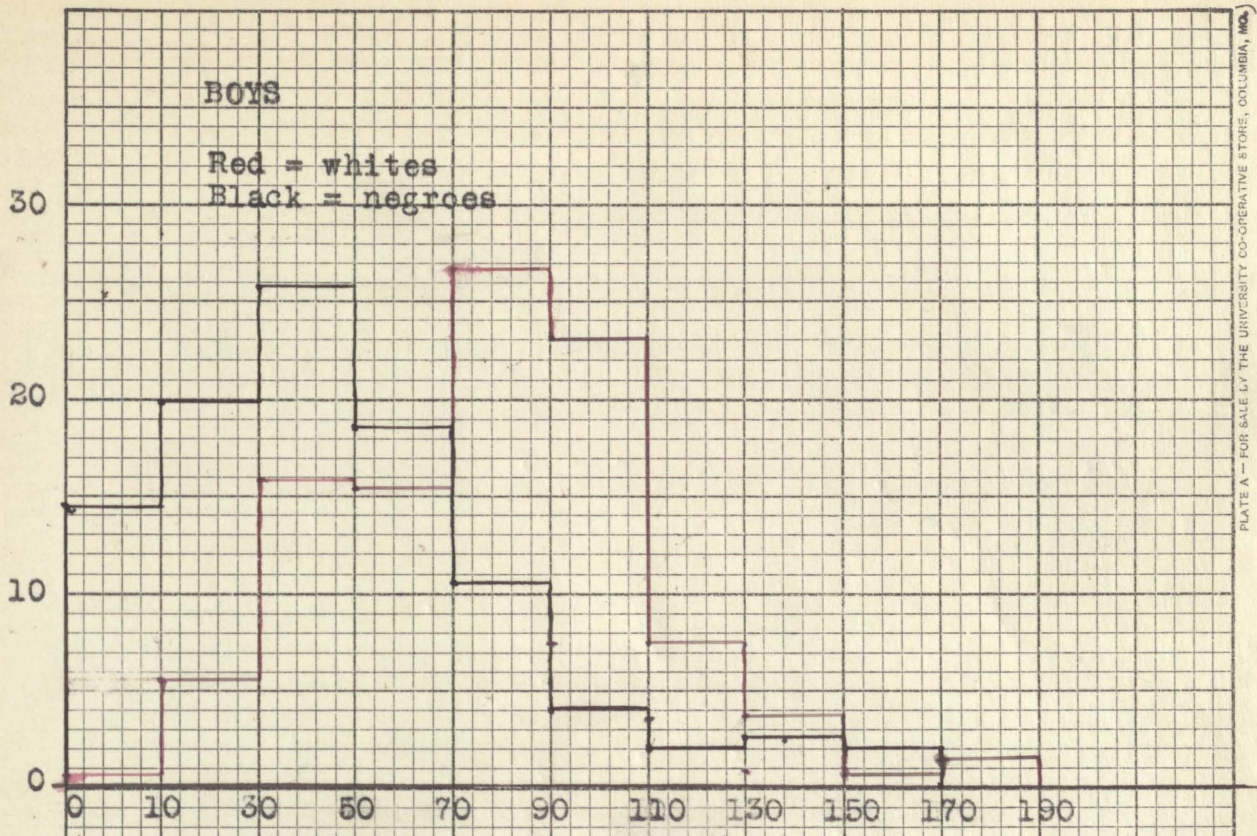
In these substitution tests, contrary to what is the condition when all tests are combined, there is more difference between white and negro girls than between white and negro boys, and more difference between white boys and girls than between negro boys and girls.

✓ In all the school grades tested the whites are superior to the negroes. The difference is least in the third grade and greatest in the seventh.

The graphs on the following page represent the standing of Columbia white children and Columbia, Mexico and Moberly colored children in the substitution tests. They represent 279 white girls, 259 white boys, 212 negro girls and 151 negro boys. The norms as given by Pyle are taken as the standard, and the whites and negroes are compared with them. Height above the base line represents the per cent. of the whole number of children tested who attain to a certain per cent. (represented horizontally on the base line) of the norm.

More negro boys are within 30 to 50 per cent. of the norm than anywhere else and more white boys are within 70 to 90 per cent of the norm. 0.4 per cent. of the white boys and 14.6 per cent of the negro boys make less than 10 per cent of the norm. 1.5 per cent of the white boys and none of the negro boys make between 170 and 190 per cent of the norm. 36.2 per cent of the white boys and 10.6 per cent of the negro boys make more than 90 per cent of the norm.

More negro girls are within 50 to 70 per cent of the norm than anywhere else and more white girls are within 70 to 90 per cent of the norm. No white girls and 15.1 per cent. of the negro girls make less than 10 per cent. of the norm, and no girls of either race make more than 170 per cent. of the norm. 35.8 per cent of the white girls and 8.6 per cent of the negro girls make more than 90 per cent of the norm.



Controlled Association. -- (Tables IV, IXa, IXb, XI, XII, XIIIa, XIIIb; graphs 8, 9, 10 & 20). In all three tests of controlled association, the whites are considerably superior to the negroes. The difference is (absolutely) about the same for all ages. The difference is relatively greatest in the genus-species test (XI) and relatively least in the opposites test. Until 11 or 12 years the negroes do almost nothing with the genus-species or part-wholes test. Sixteen year old negro girls equal ten year old white girls, in the genus-species test; and sixteen year old negro boys do not quite equal nine year old white boys. In the part-wholes test, sixteen year old negroes equal ten year old whites for both boys and girls. In the opposites test, sixteen year old negroes equal twelve year old whites for both boys and girls. In the three tests combined, the per cent. of difference between whites and negroes is 180.8 ~~per cent~~ for boys and 124.3 ~~per cent~~ for girls. The difference between white boys and girls is 7.8 per cent; between negro boys and girls the difference is 33.9 per cent.

There are data for comparing the school grades in the opposites test only. In every grade tested, the whites are superior. The difference is greatest in the fourth and fifth grades.

Free Association.-- (Tables V, IXa, IXb, XI, XII, XIIIa, XIIIb; graphs 11 & 21). There is considerable difference in favor of the whites with the younger children; but with increasing age the difference grows less until, at 14 and 16 for girls and at 16 for boys, the negroes are superior. The per cent. of difference between whites and negroes is 23.1 ~~per cent~~ for boys and 18.0 ~~per cent~~ for girls. The ~~per cent of~~ difference between white boys and girls is 10.6 per cent; between negro boys and girls, the ~~per cent of~~ difference is 15.4 per cent.

The difference between school grades is small except in the fourth grade in which the whites are considerably superior. Averaging all the grades, the average for the whites is: boys 32.7, girls 35.6. The average for the negroes is: boys 29.4, girls 30.8.

Ink-Blot Test.-- (Tables VIII, IXa, IXb, XIIIa, XIIIb; graphs 15 & 24). The curve representing age norms for the whites falls rapidly between ages 8 and 11 and is irregular thereafter. The curve for negroes starts low and rises between ages 8 and 11, crossing the curve for whites between 10 and 11; thereafter it is approximately level. The highest point in the curve is at 8 years for whites and at 11 for negro girls and at 16 for negro boys.

The negro boys are superior to the white boys except in the 6th and 7th grades; the negro girls are superior to the white girls except in the 3rd and 7th grades. The greatest difference is in the 4th and 5th grades. Averaging all the grades, the whites' average is: boys 6.3, girls 7.0. The average for the negroes is: boys 6.6, girls 6.9.

Word-Building.-- (Tables VI, IXa, IXb, XI, XII; graphs 12 & 13). The norms for negroes in this test are from Mexico and Moberly only. In Columbia, grades 4, 5 & 7 failed to understand the test and more than half of the pupils in the other grades failed to understand it. Because of the small number of pupils considered, the age norms are of little value as such; but as a means of comparison, especially when all ages are averaged together, they are of some value.

The whites are superior to the negroes at all ages. In the average of the two tests, the whites are superior to the negroes by 98.2 per cent, for the boys and by 127.3 per cent for the girls. The white girls are superior to the white boys by 13.1 per cent; but the negro boys are superior to the negro girls by 1.8 per cent. Contrary to the average of all the tests, there is in this test more difference between white

and negro girls than between white and negro boys, and the negro boys surpass the negro girls.

Cancellation.-- (Tables VII, IXa, IXb, XI, XII, XIIIa, XIIIb; graphs 14 & 22). The difference between whites and negroes in this test is very small. The whites are slightly superior until 13 years for the boys and 14 years for the girls. Thereafter the negroes are superior. The girls are always superior to the boys. The averages for all ages for whites are: boys 12.8, girls 14.6; the averages for the negroes are: boys 12.6, girls 15.8.

The whites are superior to the negroes in every school grade tested except the seventh. There is more difference between white boys and girls than between negro boys and girls. The averages for all grades combined are: white boys 14.1, white girls 16.5; negro boys 12.7, negro girls 12.8.

This test has a negative correlation with logical memory and practically no correlation with the other tests. It might therefore be expected that the negroes would excel the whites in it. When the age norms are compared, the negro girls do excel the whites (8.2%). The white boys excel the negro boys by an almost negligible amount (1.6%). On the other hand, when school grades are compared white boys are superior to negro boys and white girls are superior to negro girls.

All Tests Combined.-- (Tables Xa, Xb, XII, XIIIa, XIIIb; graphs 1 & 16). When all tests are combined so that each has about the same bearing in the average, the whites are always considerably superior to the negroes, and the girls are always superior to the boys except at 15 years in the case of the negroes. With increasing age the difference between whites and negroes tends to become less; this tendency is greater in the case of the boys than the girls. For the negroes there is a break in the progress of the mental efficiency curve at 10 and at 12 years, (the same thing occurs in physical development: graphs 25-28). There is more difference between white and negro boys than between white and negro girls; and there is more difference between negro boys and negro girls than between white boys and white girls.. The white boys are superior to the negro boys by 61.7 per cent; the white girls are superior to the negro girls by 58.5 per cent:(that is, the average ability of the white boys in the tests is 161.7 per cent. of the average ability of the negro boys, and the average ability of the white girls is 158.5 per cent. of the average ability of the negro girls. The girls are superior to the boys by 10.3 per cent for the whites and by 12.3 per cent for the negroes.

Averaging all tests, the average deviation of the whites is: boys 6.6, girls 6.8; the average deviation of the negroes is: boys 5.8, girls 6.2. (In order to give each test about the same bearing in figuring the average deviation, the original figures were modified as follows: Immediate and permanent logical memory were not changed. The two rote memory tests and the two substitution tests were each added and averaged. The three controlled association tests were added and averaged and the average was doubled. Free association was divided by two. The two word-building tests were added. Cancellation was doubled. Ink-blot test was omitted).

Summary.-- The whites are superior to the negroes in all tests with the exception of cancellation for girls. The greatest difference is in controlled association and the least difference is in cancellation. The girls are superior to the boys in all tests except in ~~the~~ the ~~the~~ word-building tests among the negroes and in permanent logical memory among the negroes. In general, there is more difference between white boys and negro boys than between white girls and negro girls; and there is more difference between negro boys and negro girls than between white boys and white girls. Exceptions occur in the case of immediate logical memory, permanent logical memory, concrete rote memory, substitution and word-building. The negroes have a relatively higher standing in memory for concrete words than in memory for abstract words. The negroes make an especially poor showing in substitution and ~~controlled~~ controlled association and word-building. The negroes make a better showing than the whites in cancellation (when compared by ages and not by grades) and in the ink-blot test, when compared by grades. The negroes show a retardation in development at 10 years and at 12 years in every test with the exception of permanent logical memory for boys, concrete rote memory for boys at 12years, abstract rote memory

for both boys and girls at 12 years, word-building for boys at 10 years and cancellation for girls at both 10 and 12 years.

The results obtained by comparing grades are generally in agreement with the above. The cancellation test is an exception. When school grades are compared, the whites are superior, while the negroes are superior in the comparison of age norms. There is a retardation of development for the negroes in the fifth grade. This corresponds to the retardation of twelve year old children noted above.

With regard to the matter of variability, the whites are slightly more variable than the negroes, and the girls are more variable than the boys.

TABLE I. Logical Memory

Immediate Retention

boys

Age.	8	9	10	11	12	13	14	15	16	Av.
No.	7	15	13	19	13	19	22	21	13	
Norm.	10.6	14.3	14.5	21.9	20.5	19.7	23.5	25.1	24.2	19.4
A. D.	4.1	5.1	5.4	8.2	7.0	9.2	7.9	7.3	6.2	6.7

girls

Age.	8	9	10	11	12	13	14	15	16	Av.
No.	13	20	17	24	18	38	30	25	21	
Norm.	11.5	15.5	16.3	21.2	18.9	21.1	24.1	23.9	26.8	19.9
A. D.	4.5	8.0	5.0	4.1	6.6	6.9	7.6	6.2	8.3	6.4

Permanent Retention

boys

Age.	8	9	10	11	12	13	14	15	16	Av.
No.	5	9	11	11	7	10	10	6	7	
Norm.	6.2	9.4	10.4	11.8	12.4	11.0	8.5	8.8	7.3	9.5
A. D.	2.2	3.0	5.1	4.9	5.2	7.0	6.2	5.9	5.2	5.0

girls

Age.	8	9	10	11	12	13	14	15	16	Av.
No.	11	8	7	13	12	16	15	11	11	
Norm.	7.2	9.8	6.6	12.4	6.3	9.4	8.7	12.5	10.5	9.3
A. D.	3.1	6.8	4.8	3.7	6.1	5.1	4.9	6.4	4.6	5.1

TABLE II. Rote Memory
Concrete Norms

<u>boys</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	7	14	14	15	13	18	23	18	14	
Norm.	18.0	22.6	21.1	22.9	28.0	30.5	34.5	42.0	44.3	29.3
A. D.	6.3	5.0	6.1	5.7	7.8	7.4	8.9	8.7	8.7	7.2

<u>girls</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	15	20	17	22	18	31	31	25	22	
Norm.	18.1	24.9	23.6	30.9	29.4	34.5	42.9	40.1	46.9	32.4
A. D.	6.2	5.6	5.1	5.8	7.5	8.2	10.2	9.4	11.6	7.7

Abstract Norms

<u>boys</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	8	14	14	14	12	19	24	18	14	
Norm.	8.0	9.6	11.4	14.3	19.2	20.9	25.1	32.2	38.4	19.7
A. D.	4.7	5.9	5.1	3.4	8.2	6.8	10.8	10.1	8.6	7.1

<u>girls</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	14	20	17	22	18	30	31	24	22	
Norm.	9.1	14.6	14.1	17.9	22.5	25.0	33.0	30.2	39.5	22.9
A. D.	5.5	6.2	5.4	4.9	6.9	8.4	11.8	12.0	13.8	8.3

TABLE III. Substitution
Digit-Symbol Norms

<u>boys</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	8	15	14	19	14	20	24	20	16	
Norm.	1.9	3.5	4.3	5.9	6.2	8.0	11.3	15.7	17.1	8.2
A. D.	1.5	2.2	3.5	4.2	3.4	4.1	6.3	7.3	7.1	4.5

<u>girls</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	14	22	19	24	19	38	31	26	22	
Norm.	1.9	5.8	4.4	7.3	6.7	11.8	16.0	11.7	18.6	9.4
A. D.	1.5	4.1	3.9	3.4	4.4	6.1	6.1	10.3	4.4	4.9

Symbol-Digit Norms

<u>boys</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	8	15	14	19	14	18	24	20	15	
Norm.	1.1	5.6	6.0	7.2	6.9	10.7	12.5	16.4	20.4	9.6
A. D.	1.2	2.9	3.5	4.5	4.5	4.7	7.7	7.7	7.3	4.9

<u>girls</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	14	21	19	24	18	40	30	26	22	
Norm.	2.8	8.0	6.8	10.0	7.3	12.5	14.6	14.5	20.8	10.8
A. D.	2.2	4.1	5.3	2.7	4.6	6.7	6.7	8.1	6.5	5.2

TABLE IV. Controlled Association
Opposites Norms

<u>boys</u>										
Age,	8	9	10	11	12	13	14	15	16	Av.
No.	8	15	13	18	14	17	22	23	15	
Norm.	1.6	1.8	1.6	4.1	5.4	6.8	6.3	10.3	11.4	5.5
A. D.	2.0	1.5	2.1	3.2	3.4	4.9	3.5	4.0	5.5	3.3
<u>girls</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	13	21	18	24	19	38	31	25	21	
Norm.	2.0	3.6	3.3	6.2	6.4	8.2	10.5	10.9	13.3	7.2
A. D.	1.2	2.4	2.2	2.3	3.7	4.5	4.8	5.7	7.9	3.9

Genus-Species Norms

<u>boys</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	8	15	14	18	14	19	23	23	15	
Norm.	0.8	0.9	1.1	1.7	2.0	2.1	2.9	3.6	5.2	2.3
A. D.	0.7	1.2	1.0	1.6	1.5	1.8	2.5	2.5	3.6	1.8
<u>girls</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	13	21	20	23	19	38	31	25	21	
Norm.	1.0	1.7	1.0	2.3	2.6	4.0	5.8	6.1	7.7	3.6
A. D.	0.8	1.1	1.4	1.0	1.9	2.8	3.6	5.1	5.0	2.5

TABLE IV. (Continued).

Part-Wholes Norms

<u>boys</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	8	15	14	18	14	20	23	23	15	
Norm.	1.4	2.2	1.9	2.9	2.9	5.0	6.6	7.5	7.5	4.2
A. D.	1.8	1.8	1.5	1.7	2.2	2.8	3.9	4.0	3.4	2.6
<u>girls</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	13	22	18	24	19	38	31	25	19	
Norm.	1.0	2.8	2.3	4.3	4.9	5.8	7.6	7.1	7.7	4.8
A. D.	0.7	1.7	2.2	1.8	2.8	4.1	2.6	3.4	2.6	2.4

TABLE V. Free Association

<u>boys</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	7	15	14	18	14	19	19	20	13	
Norm.	14.6	19.3	17.3	22.7	22.6	28.1	32.3	38.7	38.5	26.0
A. D.	5.0	6.8	7.9	6.9	9.4	15.6	14.8	9.2	12.3	9.8
<u>girls</u>										
Age.	8	9	10	11	12	13	14	15	16	Av.
No.	13	22	19	24	17	39	29	26	21	
Norm.	17.2	21.0	21.3	28.2	29.4	33.4	39.5	35.7	44.3	30.0
A. D.	3.6	7.0	4.7	8.4	12.6	16.6	14.3	18.9	19.0	11.7

TABLE VI. Word-Building

a, e, o, b, m, t Norms

boys

Age.	8	9	10	11	12	13	14	15	16	Av.
No.	2	5	1	2	4	6	6	6	4	
Norm.	0.5	3.8	6.0	5.0	4.5	5.7	2.7	8.2	10.8	5.2
A. D.	0.5	2.2	0.0	0.0	2.5	3.9	1.4	2.7	5.8	2.1

girls

Age.	8	9	10	11	12	13	14	15	16	Av.
No.	2	10	8	7	6	15	7	9	9	
Norm.	3.0	5.0	4.8	8.7	4.2	8.2	9.0	3.7	6.2	5.9
A. D.	1.0	2.8	1.7	2.4	1.5	3.1	6.6	3.0	2.9	2.8

a, e, i, r, l, p Norms

boys

Age.	8	9	10	11	12	13	14	15	16	Av.
No.	2.5	5.8	1	2	4	6	6	7	4	
Norm.	1.5	4.6	7.0	5.0	3.5	5.8	4.5	10.3	12.0	6.0
A. D.	0.5	1.9	0.0	2.0	3.0	3.8	3.8	5.0	6.5	2.9

girls

Age.	8	9	10	11	12	13	14	15	16	Av.
No.	2	11	8	7	6	15	10	12	10	
Norm.	1.5	3.8	4.0	5.4	4.5	7.5	9.2	5.4	4.6	5.1
A. D.	1.5	1.5	1.3	2.8	2.8	2.8	4.4	4.5	3.5	2.8

TABLE VII. Cancellation

"a" Test

boys

Age.	8	9	10	11	12	13	14	15	16	Av.
No.	8	13	14	17	13	18	22	18	15	
Norm.	7.2	8.4	9.7	11.0	11.5	14.6	16.9	17.9	16.2	12.6
A. D.	3.4	1.2	3.2	2.6	4.7	4.1	5.0	5.0	4.6	3.8

girls

Age.	8	9	10	11	12	13	14	15	16	Av.
No.	13	21	19	24	16	33	28	22	17	
Norm.	7.7	9.8	11.2	11.7	13.9	14.6	19.5	21.6	22.0	15.8
A. D.	2.2	2.7	2.8	3.8	4.0	4.9	5.3	5.0	5.4	4.0

TABLE VIII. Ink-Blots

boys

Age.	8	9	10	11	12	13	14	15	16	Av.
No.	6	13	11	16	12	15	17	19	13	
Norm.	4.3	6.6	6.9	6.9	6.3	6.3	7.5	7.6	9.4	6.9
A. D.	1.6	1.9	3.1	2.4	2.0	2.8	3.2	2.7	2.4	2.5

girls

Age.	8	9	10	11	12	13	14	15	16	Av.
No.	13	22	17	21	18	37	28	25	20	
Norm.	4.2	5.7	5.2	8.5	6.4	7.7	7.0	7.3	6.5	6.5
A. D.	2.0	2.7	2.6	2.5	4.4	3.0	3.4	2.5	2.8	2.9

TABLE IXa. Norms for White Children

		<u>boys</u>									
	Age	8	9	10	11	12	13	14	15	16	Av.
Logical Memory immediate	Norm	11.7	19.0	24.9	25.3	25.0	26.5	23.0	27.1	28.7	23.5
	A.D.	4.2	7.3	5.1	4.5	6.6	9.6	8.1	3.5	5.2	6.0
Logical Memory permanent	Norm	9.5	11.3	10.9	12.6	11.5	13.1	9.5	8.8	9.7	10.8
	A.D.	5.7	4.9	5.0	4.5	3.0	6.0	4.6	3.3	6.4	4.8
Rote Memory concrete	Norm	31.2	32.4	35.8	37.7	37.7	38.3	40.0	40.2	43.4	37.4
	A.D.	6.7	7.4	6.3	6.4	5.0	5.6	6.4	4.9	6.3	6.1
Rote Memory abstract	Norm	22.9	26.3	26.8	31.7	31.0	32.4	37.3	34.1	40.0	31.4
	A.D.	7.8	7.5	7.0	7.1	6.6	7.7	7.1	6.2	8.3	7.3
Substitution digit-symbol	Norm	10.3	12.6	15.4	16.3	19.1	22.6	21.1	24.7	24.8	18.5
	A.D.	3.5	4.1	3.9	3.6	5.1	5.8	4.5	4.6	5.4	4.4
Substitution symbol-digit	Norm	10.0	13.2	16.5	17.7	19.3	20.7	23.3	25.8	27.8	19.4
	A.D.	5.3	5.0	5.8	5.4	5.4	5.7	5.4	5.9	6.3	5.6
Controlled Ass'n opposites	Norm	9.0	8.4	7.5	10.9	11.5	14.5	14.5	16.0	18.6	12.3
	A.D.	3.3	3.0	3.1	2.9	2.9	4.5	4.3	5.2	5.3	3.8

TABLE IXa. (Continued)

		<u>boys</u>									
	Age	8	9	10	11	12	13	14	15	16	Av.
Controlled Ass'n genus-species	Norm	4.6	5.7	6.5	7.2	7.1	10.0	10.5	11.1	15.2	8.7
	A.D.	3.4	3.4	3.7	3.3	2.5	3.8	3.8	5.4	4.3	3.8
Controlled Ass'n part-wholes	Norm	5.5	6.5	7.3	8.9	8.9	11.1	12.2	14.8	15.9	10.1
	A.D.	3.6	2.9	2.5	2.8	3.4	4.3	4.1	5.5	5.3	3.8
Free Association	Norm	23.0	26.9	29.7	33.3	34.2	33.9	33.3	40.0	33.3	32.0
	A.D.	7.5	7.6	9.0	11.4	10.9	14.6	13.2	14.8	14.6	10.9
Word-Building a, e, o, b, m, t	Norm	6.6	7.3	9.1	10.4	10.0	11.3	12.5	15.8	14.1	10.8
	A.D.	4.0	3.5	3.0	2.8	3.3	4.7	4.4	3.5	3.1	3.6
Word-Building a, e, i, r, l, p	Norm	6.5	7.3	9.4	11.0	11.0	12.4	11.8	16.0	16.4	11.3
	A.D.	3.9	3.6	3.1	3.8	4.1	4.9	4.3	4.4	3.6	3.9
Cancellation	Norm	7.8	9.2	10.4	11.4	13.8	13.2	16.9	15.2	17.5	12.8
	A.D.	2.3	2.3	2.8	3.0	3.8	2.8	4.1	3.7	3.8	3.2
Ink-Blots	Norm	11.8	8.8	7.7	6.4	9.1	9.0	6.7			8.5
	A.D.	5.7	3.0	2.3	4.9	4.6	4.7	2.2			3.9

TABLE IXb. Norms for White Children

		<u>girls</u>									
	Age	8	9	10	11	12	13	14	15	16	Av.
Logical Memory immediate	Norm	16.6	19.4	22.0	25.0	27.6	27.4	26.0	26.9	37.0	25.3
	A.D.	8.6	5.5	6.0	5.6	6.4	4.3	6.7	5.9	3.0	5.8
Logical Memory permanent	Norm	8.0	11.2	12.5	14.4	12.3	12.4	12.7	8.6	13.0	11.7
	A.D.	5.5	4.9	5.6	6.3	5.9	5.7	6.0	4.1	1.0	5.0
Rote Memory concrete	Norm	32.9	32.7	39.6	37.7	38.7	40.4	44.2	42.0	42.5	39.0
	A.D.	7.1	6.2	5.2	5.2	6.1	5.4	7.0	7.0	4.8	6.0
Rote Memory abstract	Norm	20.5	24.0	31.0	31.8	34.0	36.0	39.0	37.8	41.0	32.8
	A.D.	7.8	5.8	6.1	7.1	7.5	4.0	8.4	7.3	5.2	6.6
Substitution digit-symbol	Norm	13.0	15.7	18.8	18.5	22.7	23.8	26.8	26.8	27.5	21.5
	A.D.	3.2	4.1	4.4	4.1	4.9	5.2	5.0	4.7	5.3	4.5
Substitution symbol-digit	Norm	10.9	16.0	19.9	19.6	23.1	25.6	27.4	29.7	29.1	22.4
	A.D.	5.3	5.2	6.4	6.3	6.6	6.4	6.1	6.7	5.3	6.1
Controlled Ass'n opposites	Norm	8.0	7.6	10.9	11.2	13.9	14.9	17.4	17.3	19.3	13.4
	A.D.	4.0	2.9	3.1	3.0	3.6	4.3	3.9	5.1	4.2	3.8

TABLE IXb. (Continued)

	Age	8	9	10	11	12	13	14	15	16	Av.
Controlled Ass'n genus-species	Norm	5.5	5.4	7.8	8.2	9.3	9.5	11.8	14.0	16.4	9.8
	A.D.	3.6	2.5	3.2	3.7	2.9	3.2	3.2	4.2	5.4	3.5
Controlled Ass'n part-wholes	Norm	4.6	5.9	7.8	10.0	10.0	10.8	12.5	14.0	16.9	10.3
	A.D.	2.6	2.4	2.9	3.5	3.7	3.5	3.2	4.5	4.5	3.4
Free Association	Norm	23.7	31.0	32.2	36.8	36.6	38.3	39.1	40.2	40.9	35.4
	A.D.	8.2	8.9	10.8	12.1	15.4	16.8	12.9	13.8	14.1	12.5
Word-Building a,e,o,b,m,t	Norm	7.1	8.0	10.5	11.5	13.2	15.5	13.7	15.0	13.5	12.0
	A.D.	2.2	3.7	3.7	3.5	4.1	4.2	4.4	3.1	4.6	3.7
Word-Building a,e,i,r,l,p	Norm	6.7	8.4	10.4	12.2	14.2	15.8	16.0	17.1	16.5	13.0
	A.D.	4.0	4.5	4.1	4.0	5.4	5.3	5.8	3.4	4.9	4.6
Cancellation	Norm	8.2	10.6	11.4	13.3	14.5	16.4	17.8	18.9	20.4	14.6
	A.D.	2.3	3.0	3.2	3.4	3.4	3.6	4.1	4.2	4.5	3.5
Ink-Blots	Norm	12.0	9.8	7.8	6.6	6.8	10.3				8.9
	A.D.	3.3	3.5	2.6	3.6	4.3	2.1				3.5

TABLE Xa. Negroes

BOYS										
Age	8	9	10	11	12	13	14	15	16	Av.
Log. Memory	10.6	14.3	14.5	21.9	20.5	19.7	23.5	25.1	24.2	19.4
Rote Memory	13.0	16.1	16.3	18.6	23.6	25.7	29.8	37.1	41.4	24.6
Substitution	2.3	6.8	7.7	9.8	9.8	14.3	17.9	24.1	28.1	13.4
Contr. Ass'n	3.8	4.9	4.6	8.7	10.3	13.9	15.8	21.4	24.1	11.9
Free Ass'n	14.6	19.3	17.3	22.7	22.6	28.1	32.3	38.7	38.5	26.0
Word-Building	2.0	8.4	13.0	10.0	8.0	11.5	7.2	18.5	22.8	11.3
Cancellation	14.4	16.8	18.4	22.0	23.0	29.2	33.8	35.8	32.4	25.1
Average	8.7	12.4	13.1	16.2	16.8	20.3	22.9	28.7	30.2	
GIRLS										
Age	8	9	10	11	12	13	14	15	16	Av.
Log. Memory	11.5	15.5	16.3	21.2	18.9	21.1	24.1	23.9	26.8	19.9
Rote Memory	13.6	19.8	18.9	24.4	26.0	29.8	38.0	35.2	43.2	27.7
Substitution	3.5	10.4	8.4	13.0	10.5	18.2	23.0	19.7	29.6	15.2
Contr. Ass'n	4.0	8.1	6.6	12.8	13.9	18.0	23.9	24.1	28.7	15.6
Free Ass'n	17.2	21.0	21.3	28.2	29.4	33.4	39.5	35.7	44.3	30.0
Word-Building	4.5	8.8	8.8	14.1	8.7	15.7	18.2	9.1	10.8	11.0
Cancellation	15.4	19.6	22.4	23.4	27.8	29.2	39.0	42.2	44.0	29.2
Average	10.0	14.7	14.7	19.6	19.3	23.6	29.5	27.1	32.5	

TABLE Xb. Whites

BOYS										
Age	8	9	10	11	12	13	14	15	16	Av.
Log. Memory	12	19	25	25	25	27	23	27	29	23.5
Rote Memory	27	29	31	35	34	35	39	37	37	33.8
Substitution	15	20	24	25	29	32	36	38	39	28.7
Contr. Ass'n	19	21	21	27	27	36	37	42	50	31.1
Free Ass'n	23	27	30	33	34	34	33	40	33	31.9
Word-Building	15	15	18	21	21	24	24	32	28	22.0
Cancellation	16	18	20	23	28	26	34	30	35	25.6
Average	18.0	21.3	24.1	27.0	28.3	30.5	32.2	35.1	35.7	
GIRLS										
Age	8	9	10	11	12	13	14	15	16	Av.
Log. Memory	17	19	22	25	28	27	26	27	37	25.3
Rote Memory	27	28	35	35	36	38	41	40	42	35.8
Substitution	18	24	29	29	34	36	41	42	42	32.8
Contr. Ass'n	18	19	26	29	33	35	42	45	53	33.3
Free Ass'n	24	31	32	37	37	38	39	40	41	35.4
Word-Building	15	16	21	24	27	31	30	32	30	25.1
Cancellation	16	21	23	27	29	33	36	38	41	29.3
Average	19.2	22.6	26.8	29.4	31.8	33.8	36.4	37.7	40.8	

TABLE XI.

	BOYS					GIRLS					% of diff. between boys and girls	
	Whites	Negroes	% of	Whites	Negroes	% of	Whites	Negroes	% of	Whites	Negroes	
	Norm A.D.	Norm A.D.	diff.	Norm A.D.	Norm.A.D.	diff.	Norm A.D.	Norm.A.D.	diff.	Whites	Negroes	
Immed. Log. Mem.	23.5	6.0	19.4	6.7	21.1	25.3	5.8	19.9	6.4	27.1	7.7	2.6
Per. Log. Mem.	10.8	4.8	9.5	5.0	13.7	11.7	5.0	9.3	5.1	25.8	8.3	2.2*
Con. Rote Mem.	37.4	6.1	29.3	7.2	27.6	39.0	6.0	32.4	7.7	20.4	4.3	10.6
Abstr. Rote Mem.	31.4	7.3	19.7	7.1	59.4	32.8	6.6	22.9	8.3	43.2	4.5	16.2
Digit-Symbol	18.5	4.4	8.2	4.5	122.6	21.5	4.5	9.4	4.9	128.7	16.2	14.6
Symbol-Digit	19.4	5.6	9.6	4.9	101.1	22.4	6.1	10.8	5.2	107.4	15.5	12.5
Opposites	12.3	3.8	5.5	3.3	123.6	13.4	3.8	7.2	3.9	86.1	8.9	30.9
Genus-Species	8.7	3.8	2.3	1.8	278.3	9.8	3.5	3.6	2.5	172.2	12.6	56.5
Part-Wholes	10.1	3.8	4.2	2.6	140.5	10.3	3.4	4.8	2.4	114.6	2.0	14.3
Free Association	32.0	10.9	26.0	9.8	23.1	35.4	12.5	30.0	11.7	18.0	10.6	15.4
Word-Building	11.1	3.8	5.6	2.5	98.2	12.5	4.2	5.5	2.8	127.3	12.6	1.8*
Cancellation	12.8	3.2	12.6	3.8	1.6	14.6	3.5	15.8	4.0	8.2*	14.1	25.4

*A star indicates a difference in favor of the negroes or boys; otherwise the difference is in favor of the whites and the girls.

TABLE XII.

	BOYS		GIRLS		WHITES		NEGROES	
	Whites	Negroes	Whites	Negroes	Boys	Girls	Boys	Girls
Immediate Logical Memory	21.1		27.1			7.7		2.6
Permanent Logical Memory	13.7		25.8			8.3	2.2	
Rote Memory	43.5		31.8			4.4		13.4
Substitution	111.9		118.1			15.9		13.6
Controlled Ass'n	180.8		124.3			7.8		33.9
Free Association	23.1		18.0			10.6		15.4
Word-Building	98.2		127.3			13.1	4.1	
Cancellation	1.6			8.2		14.1		25.4
Average	61.7		58.5			10.3		12.8

TABLE XIIIa.

		BOYS						
		Grade	3	4	5	6	7	Av.
Age in years and months	Whites		9-7	10-6	11-7	12-6	13-8	
	Negroes		10-1	11-6	13-0	13-7	14-0	
Logical Memory Immediate	Whites		11.7	21.5	24.6	27.2	27.9	22.6
	Negroes		13.2	18.2	18.7	25.3	33.9	21.9
Logical Memory Permanent	Whites		7.4	10.1	11.5	14.3	10.5	10.8
	Negroes		7.4	13.0	4.6	5.8	9.9	8.1
Rote Memory	Whites		17.0	28.8	32.7	33.3	41.8	30.7
	Negroes		12.9	18.4	24.0	27.8	23.7	21.4
Substitution	Whites		5.5	10.9	15.4	17.2	21.5	14.1
	Negroes		2.1	7.6	5.3	10.4	6.8	6.4
Opposites	Whites		3.0	8.8	10.5	11.3	14.3	9.6
	Negroes		0.6	2.5	4.1	9.6	11.3	5.6
Free Association	Whites		14.5	23.8	35.5	38.7	51.2	32.7
	Negroes		15.6	21.6	20.9	35.8	52.9	29.4
Ink-Blots	Whites		5.0	6.3	5.9	8.4	6.0	6.3
	Negroes		5.2	6.5	9.3	8.1	3.9	6.6
Cancellation	Whites		8.6	12.6	15.3	17.8	16.0	14.1
	Negroes		6.9	11.3	10.7	14.9	19.8	12.7
All Tests Combined		Whites	7.2	12.1	14.4	16.6	17.8	
		Negroes	6.1	9.7	10.3	13.3	14.6	

TABLE XIIIb.

		GIRLS						
		Grade	3	4	5	6	7	Av.
Age in years and months	Whites		9-5	10-4	11-7	12-1	13-6	
	Negroes		10-2	11-9	12-3	12-8	14-8	
Logical Memory Immediate	Whites		13.0	21.3	24.7	26.8	29.2	23.0
	Negroes		12.3	24.3	19.0	23.8	34.8	22.8
Logical Memory Permanent	Whites		8.5	10.9	11.2	16.8	11.0	11.7
	Negroes		7.5	14.4	7.9	5.7	4.9	8.1
Rote Memory	Whites		20.8	29.5	32.5	35.0	41.0	31.8
	Negroes		14.4	22.6	22.8	26.9	32.7	23.9
Substitution	Whites		5.4	13.0	17.2	20.2	23.8	15.9
	Negroes		1.6	8.3	7.0	9.6	8.3	7.0
Opposites	Whites		3.4	9.3	11.0	11.9	14.7	10.1
	Negroes		1.9	3.4	4.8	10.0	10.7	6.2
Free Association	Whites		20.0	24.5	37.8	40.1	55.7	35.6
	Negroes		15.7	24.4	23.3	41.1	49.7	30.8
Ink-Blots	Whites		6.0	7.0	6.9	7.5	7.4	7.0
	Negroes		4.5	8.8	9.8	8.4	3.2	6.9
Cancellation	Whites		12.6	15.3	15.4	21.3	17.7	16.5
	Negroes		8.4	13.4	8.4	14.2	19.6	12.8
All Tests Combined		Whites	8.8	13.1	15.2	17.8	19.1	
		Negroes	6.3	11.8	10.3	13.4	14.2	

1. ALL TESTS COMBINED.

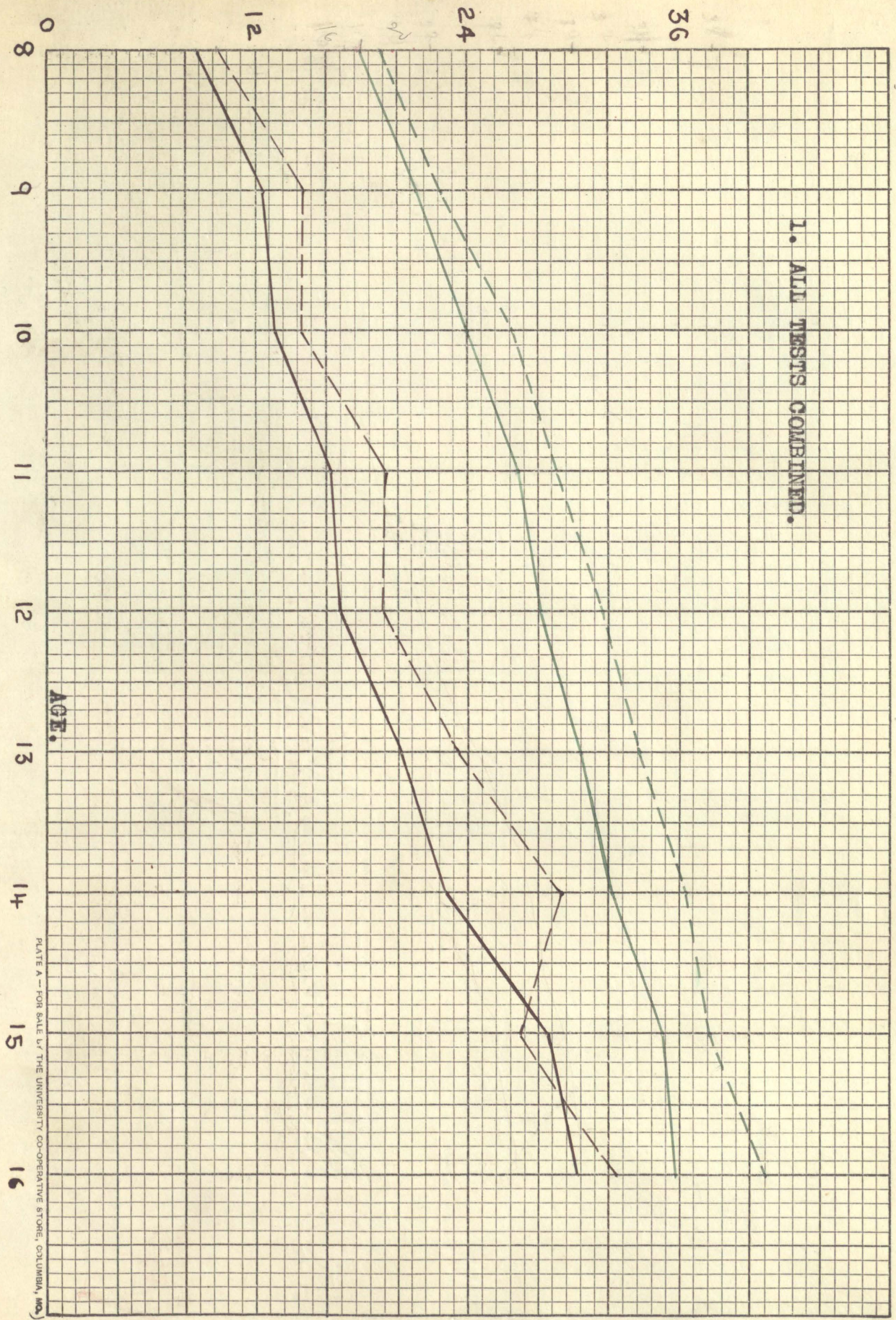


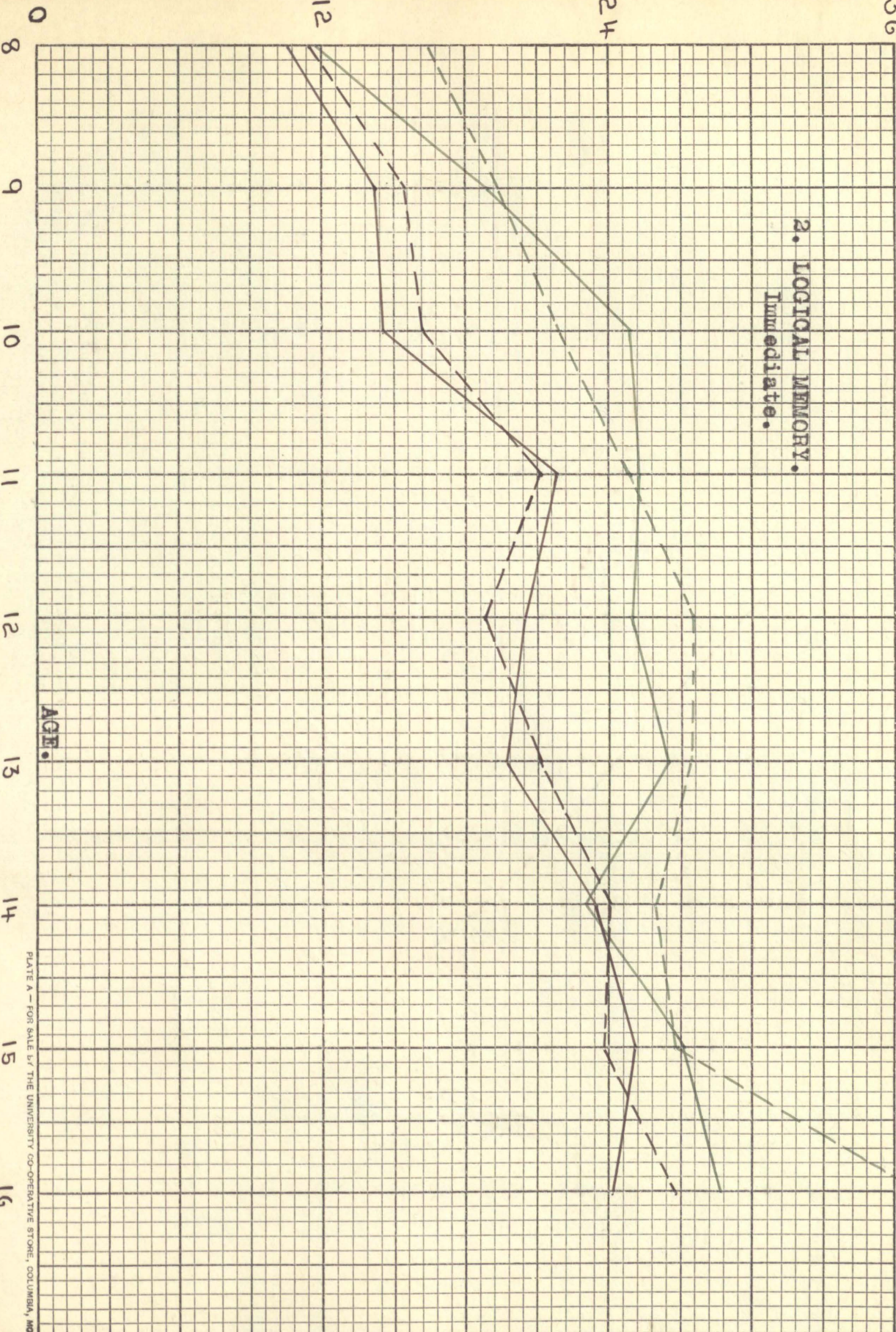
PLATE A.—FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

36

24

12

2. LOGICAL MEMORY.
Immediate.



AGE.

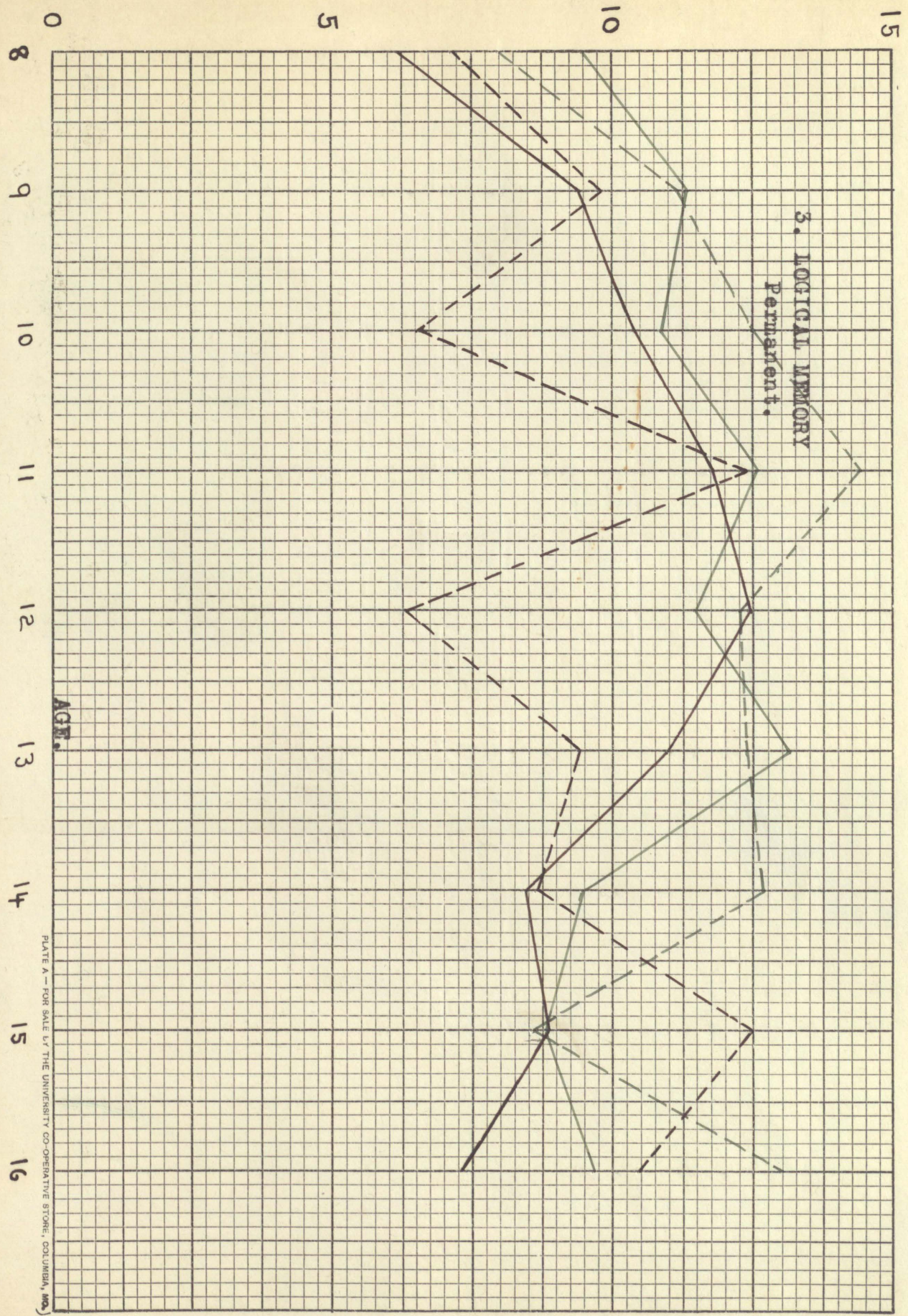


PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

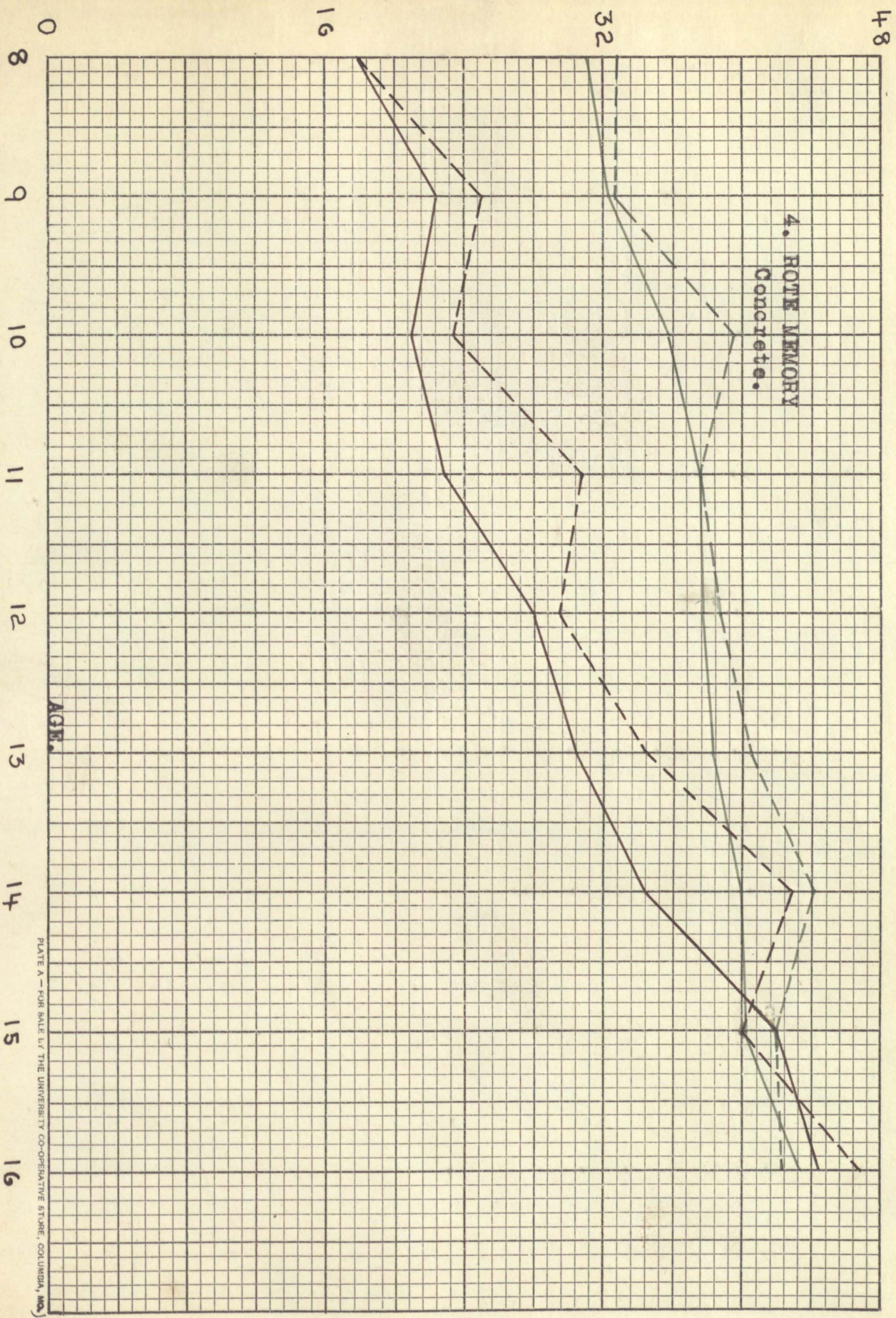


PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

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5. ROTR MEMORY
Abstract.

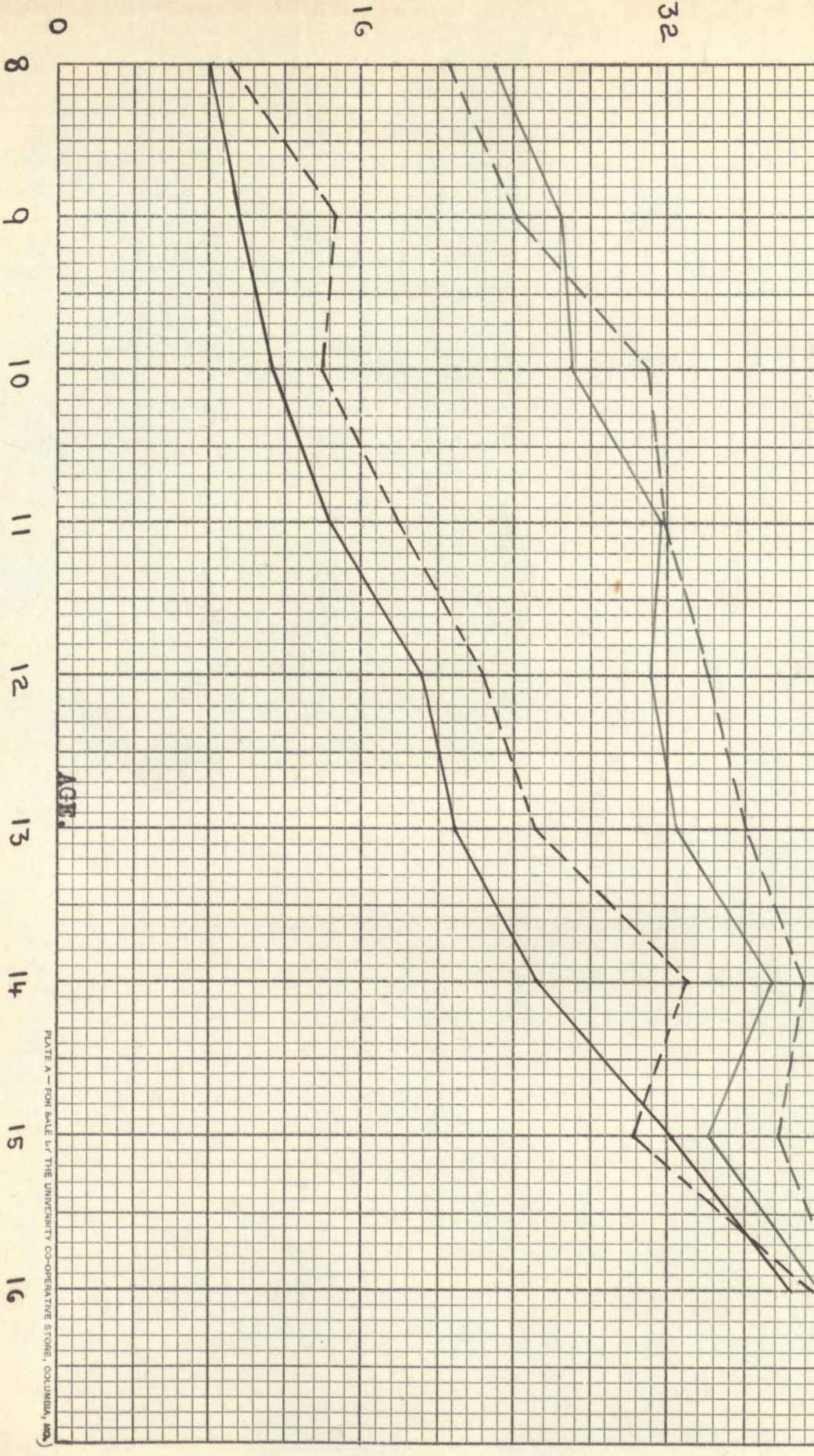


PLATE A—FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

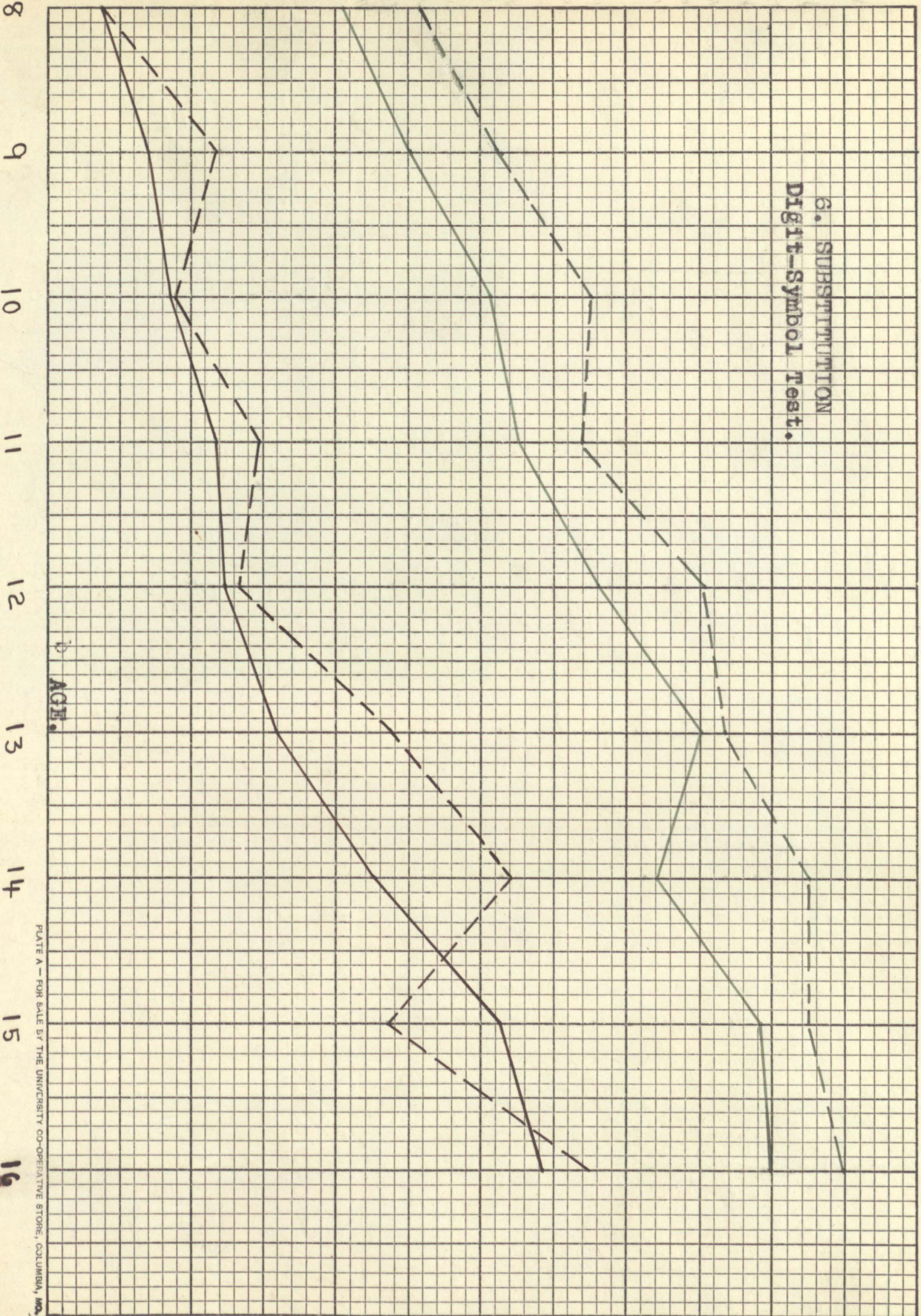
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20

10

0

6. SUBSTITUTION
Digit-Symbol Test.



AGE.

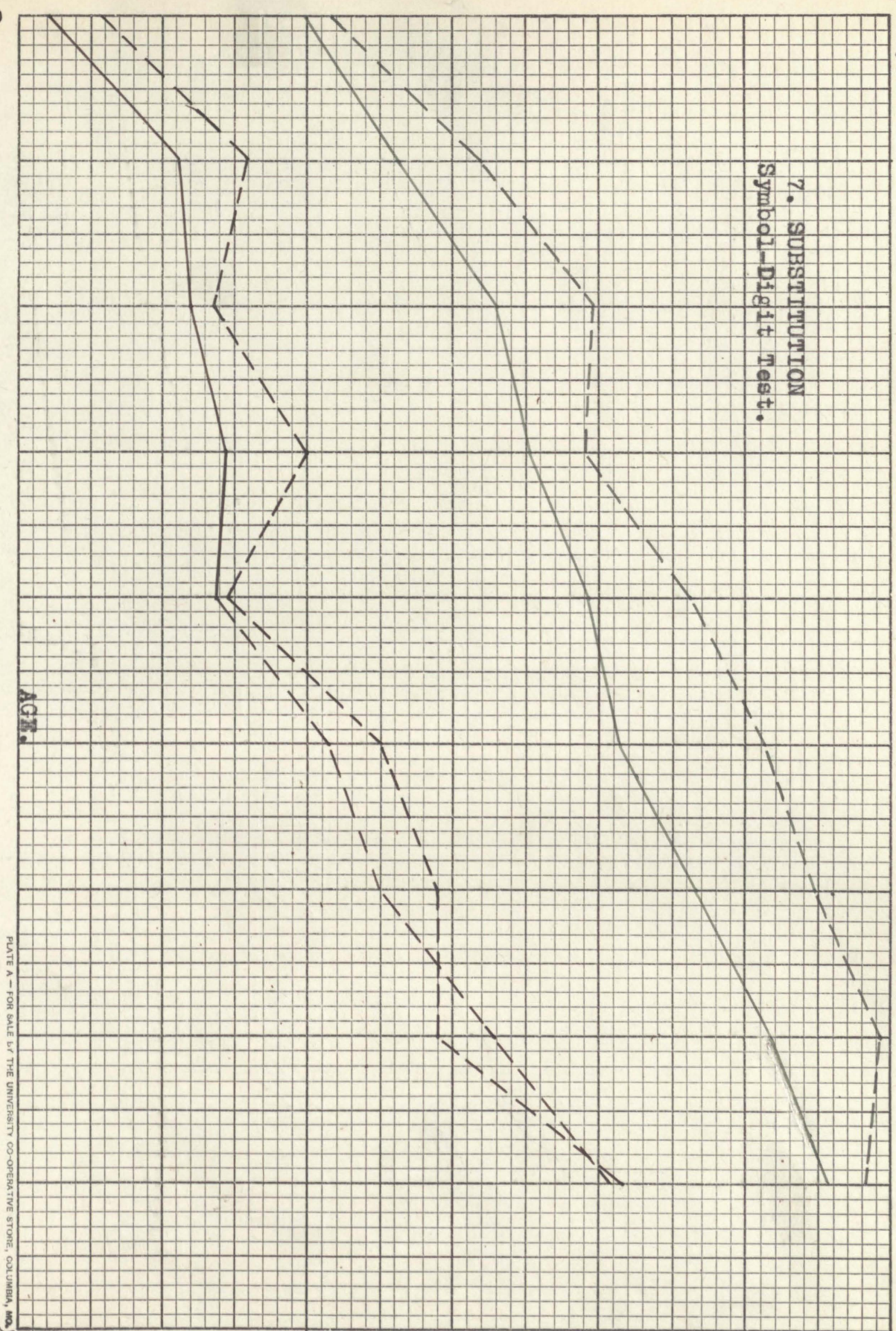
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7. SUBSTITUTION
Symbol-Digit Test.



AGT.

8 9 10 11 12 13 14 15 16

8. CONTROLLED ASSOCIATION
Opposites.

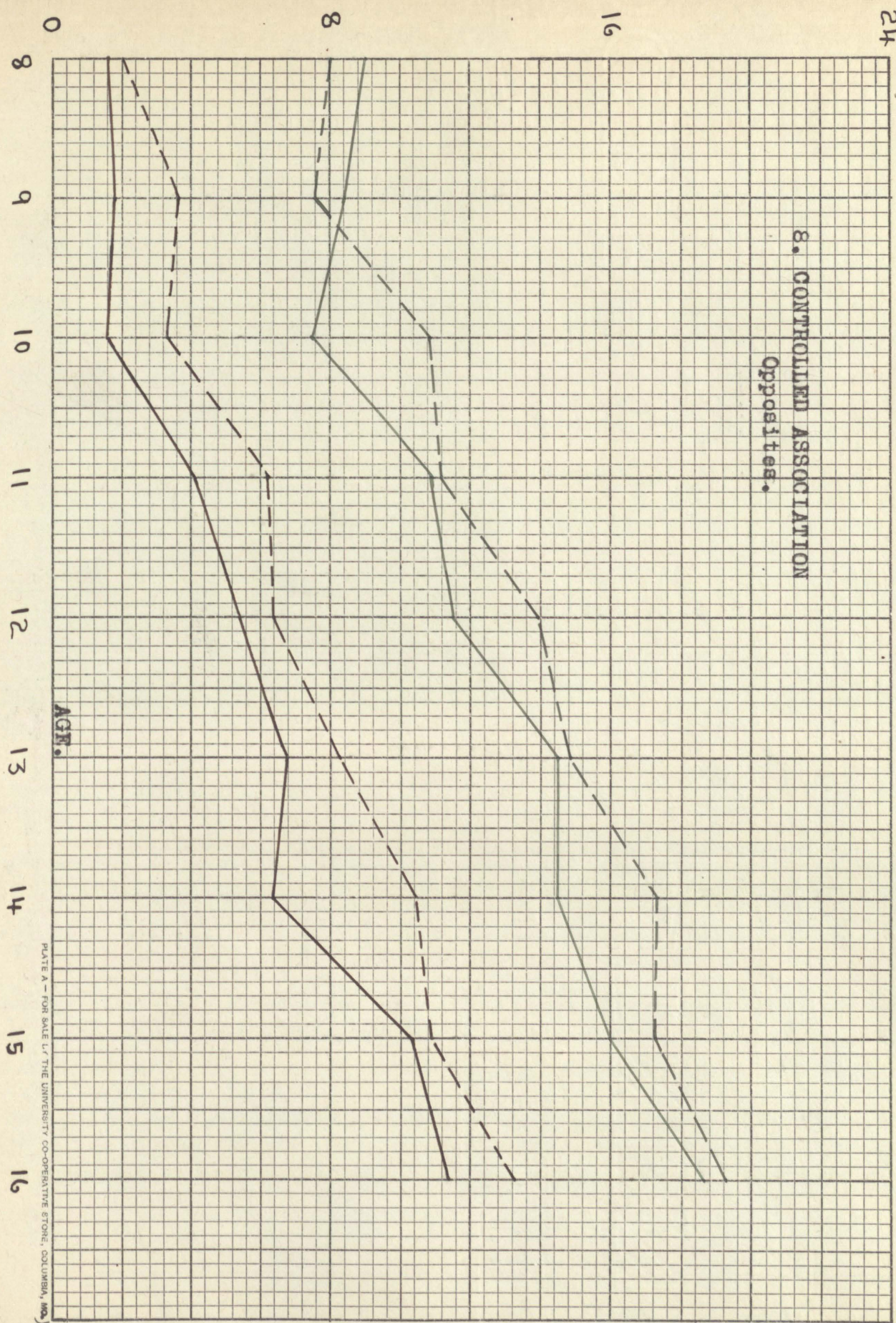


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24

16

8

0
8

9. CONTROLLED ASSOCIATION
Genus-Species.

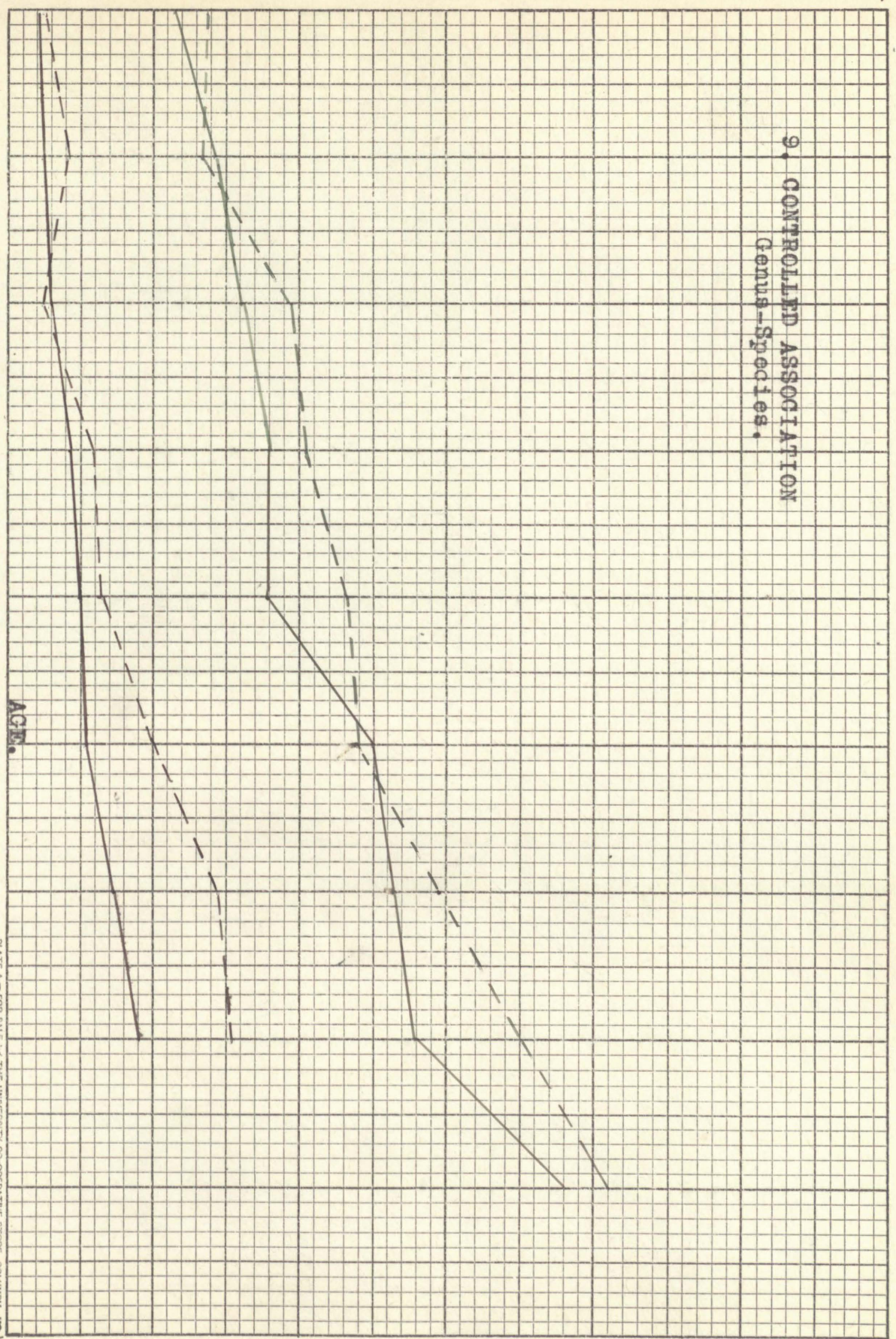


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10. CONTROLLED ASSOCIATION
Part-Wholes.

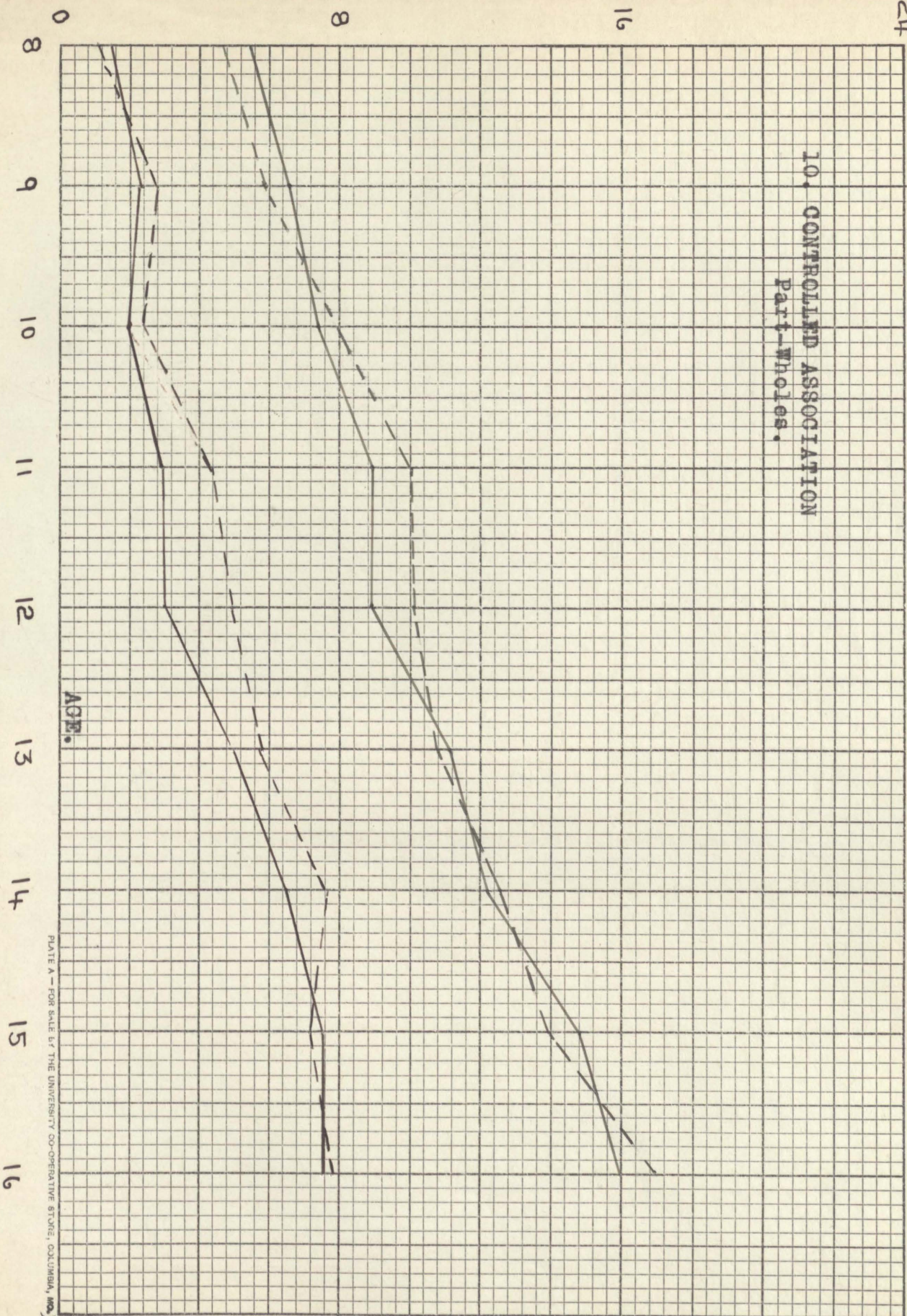


PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

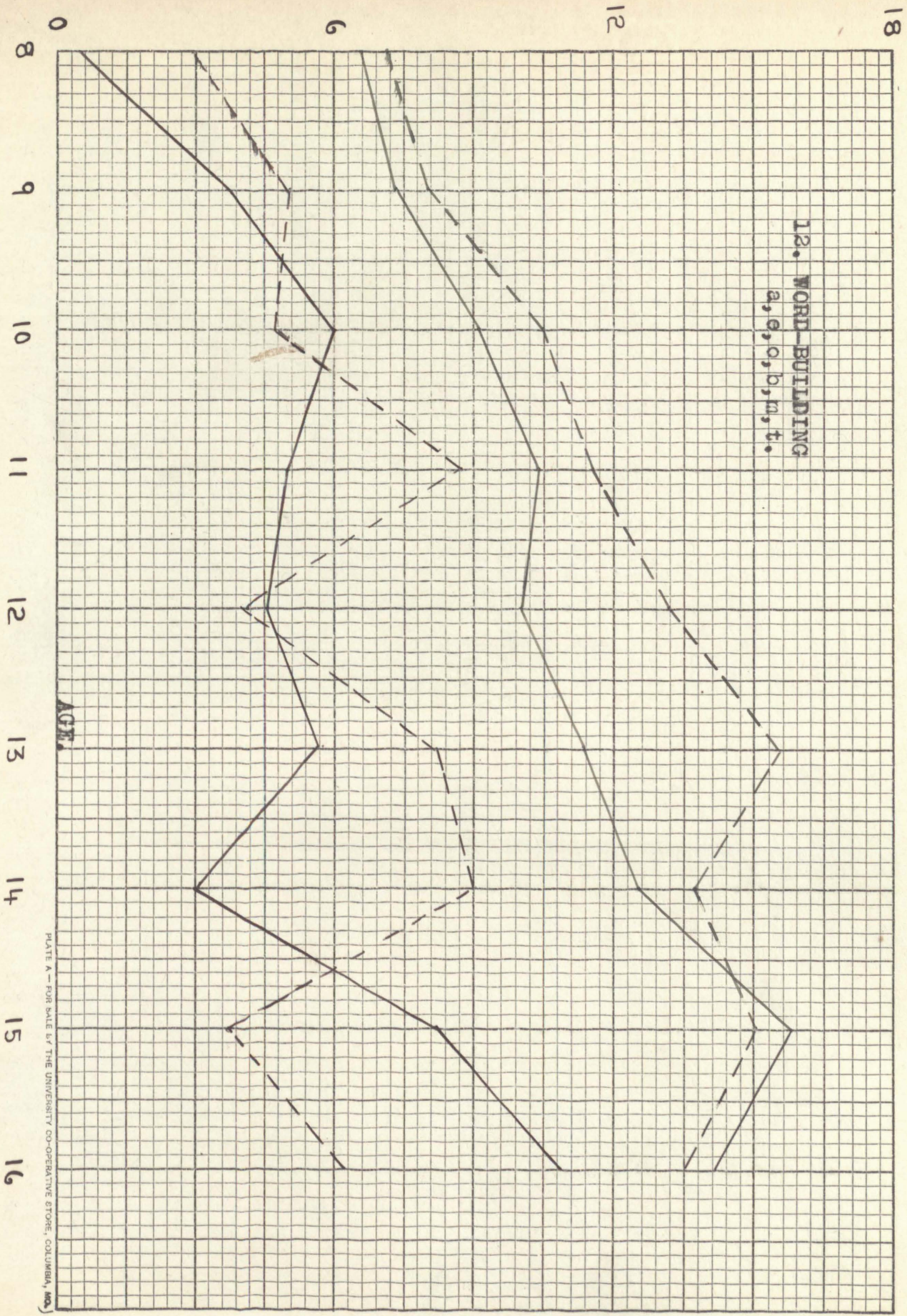


PLATE A - PUR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

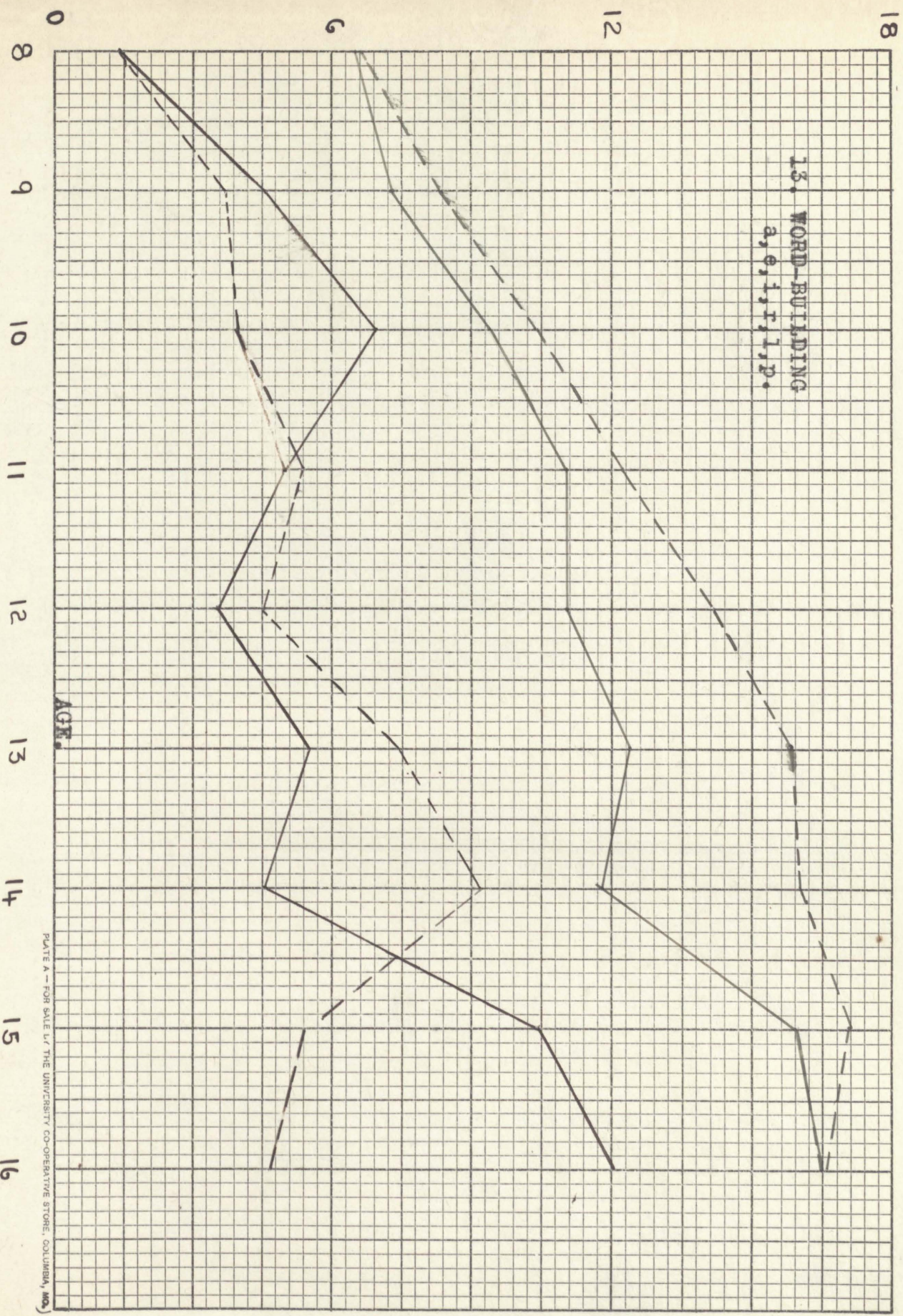
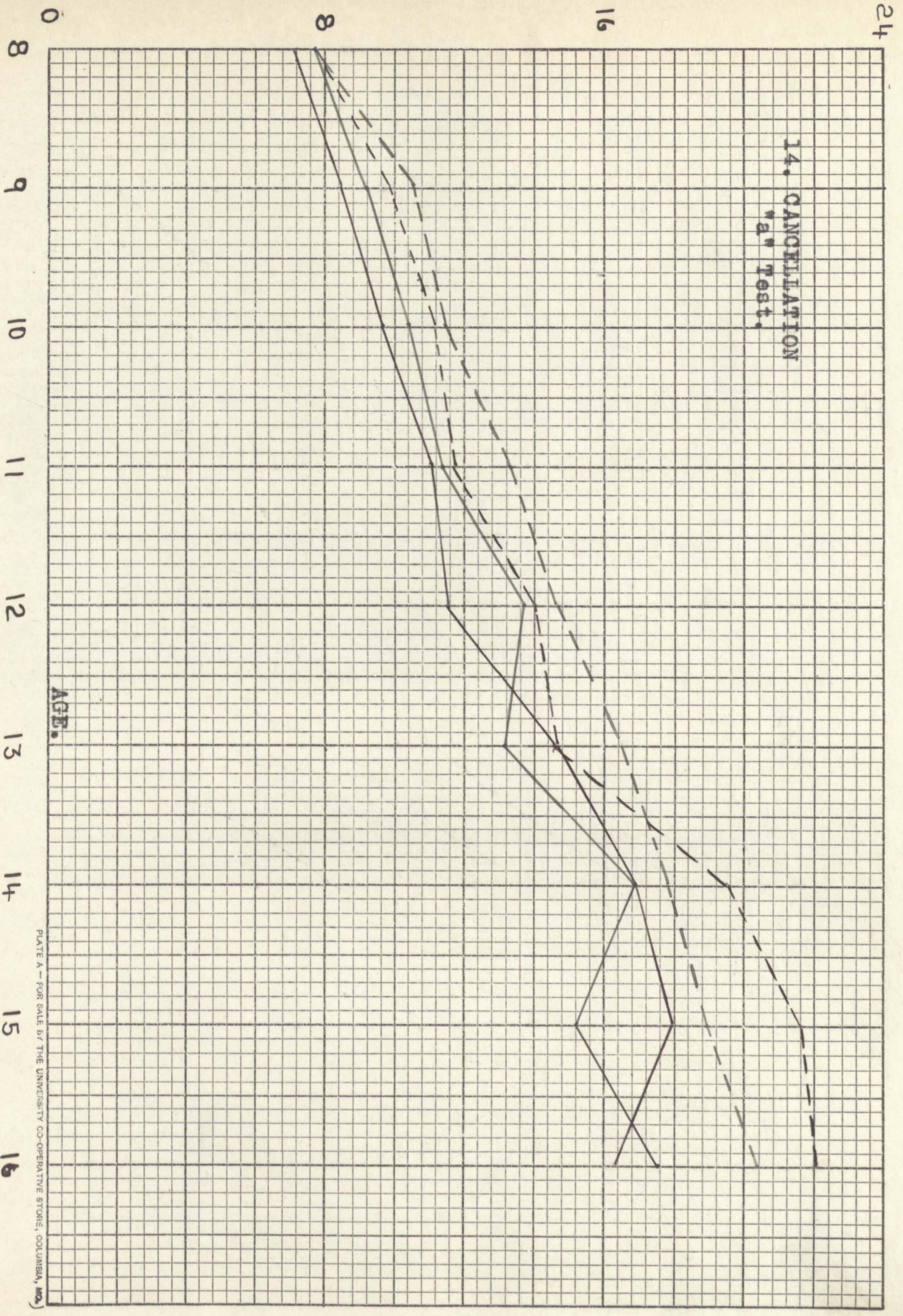


PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBA, MO.

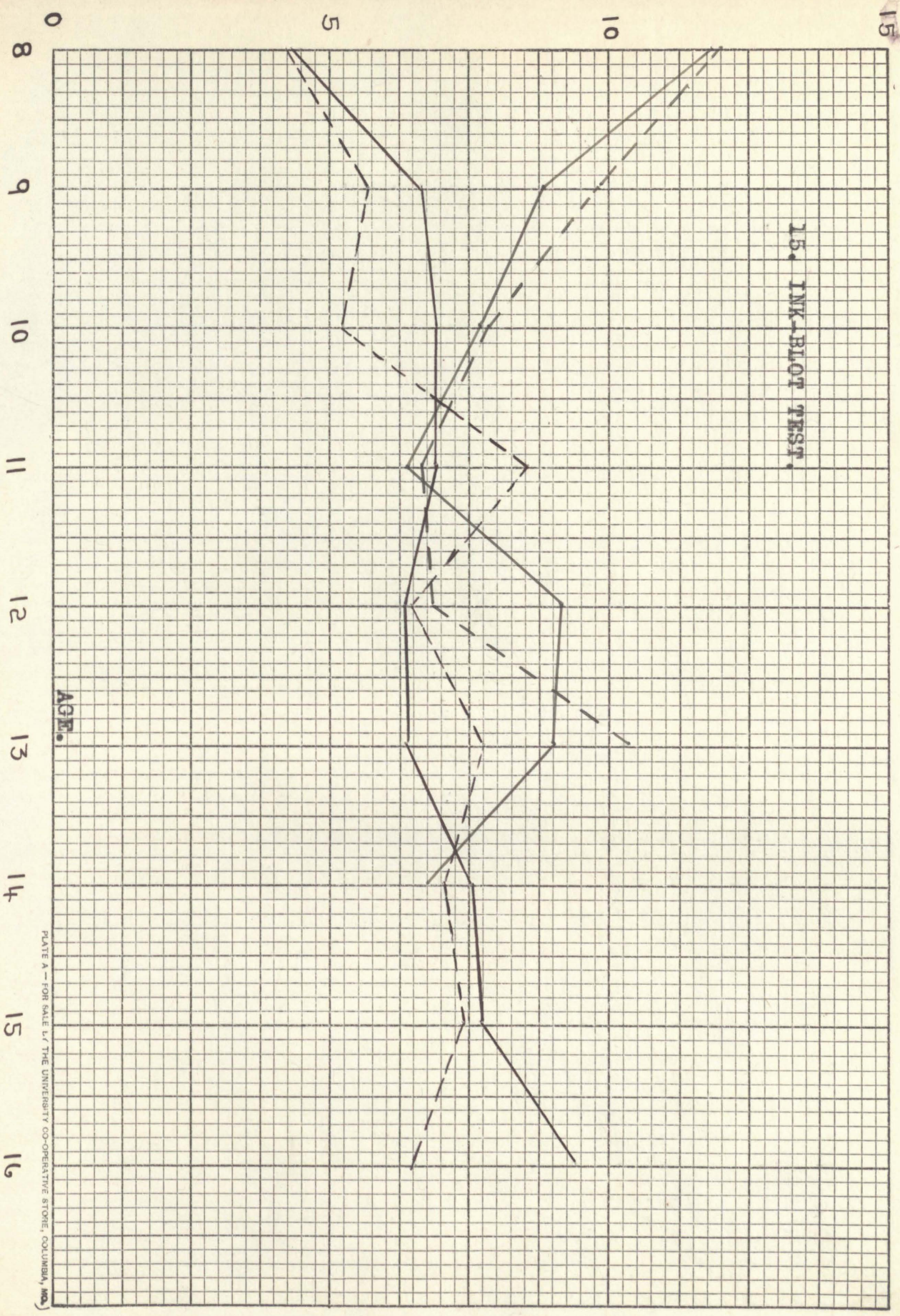


14. CANCELLATION
W.A.W. TEST

AGE.

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

15. INK-BLOT TEST.



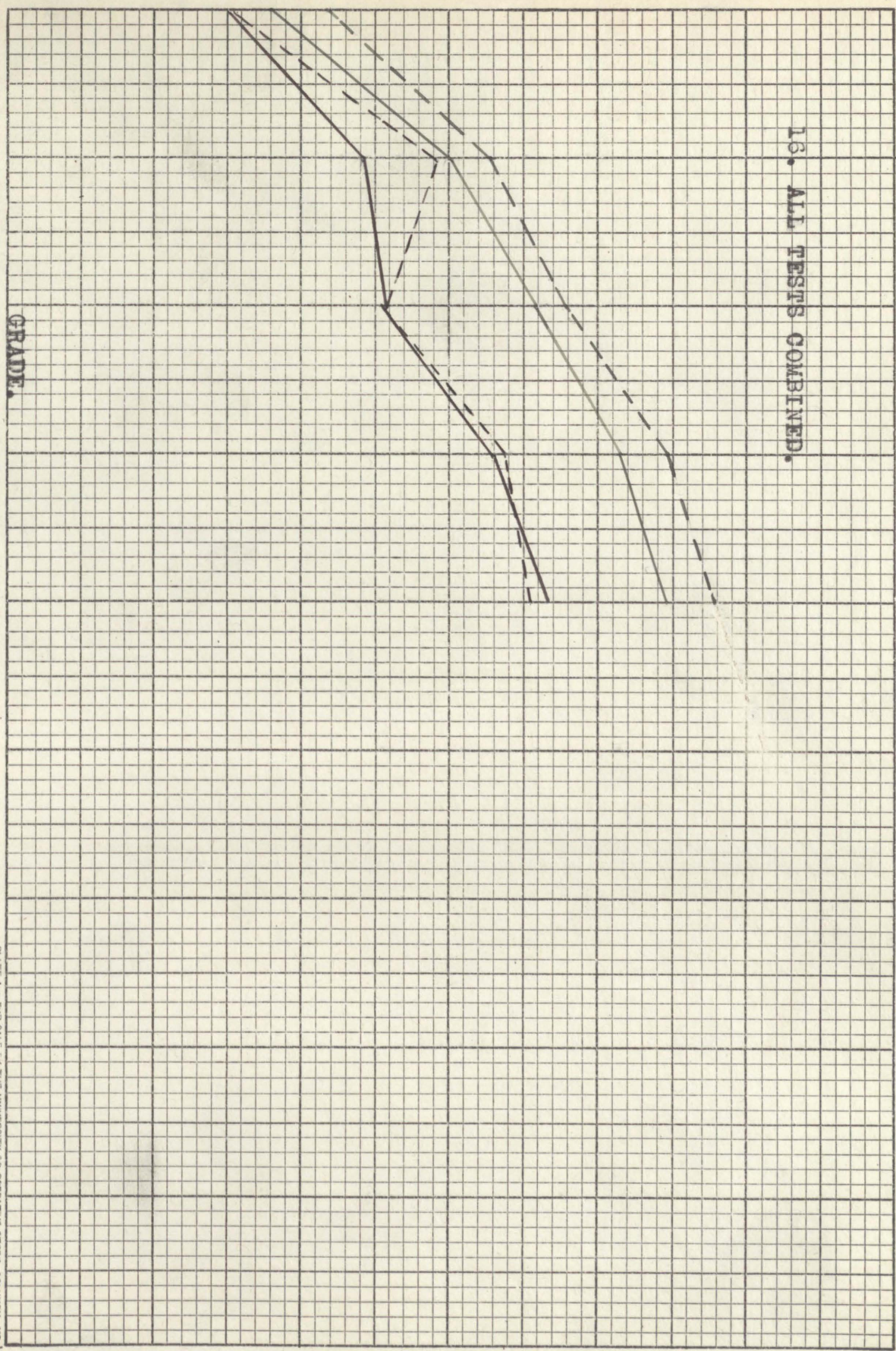
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16

8

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13. ALL TESTS COMBINED.

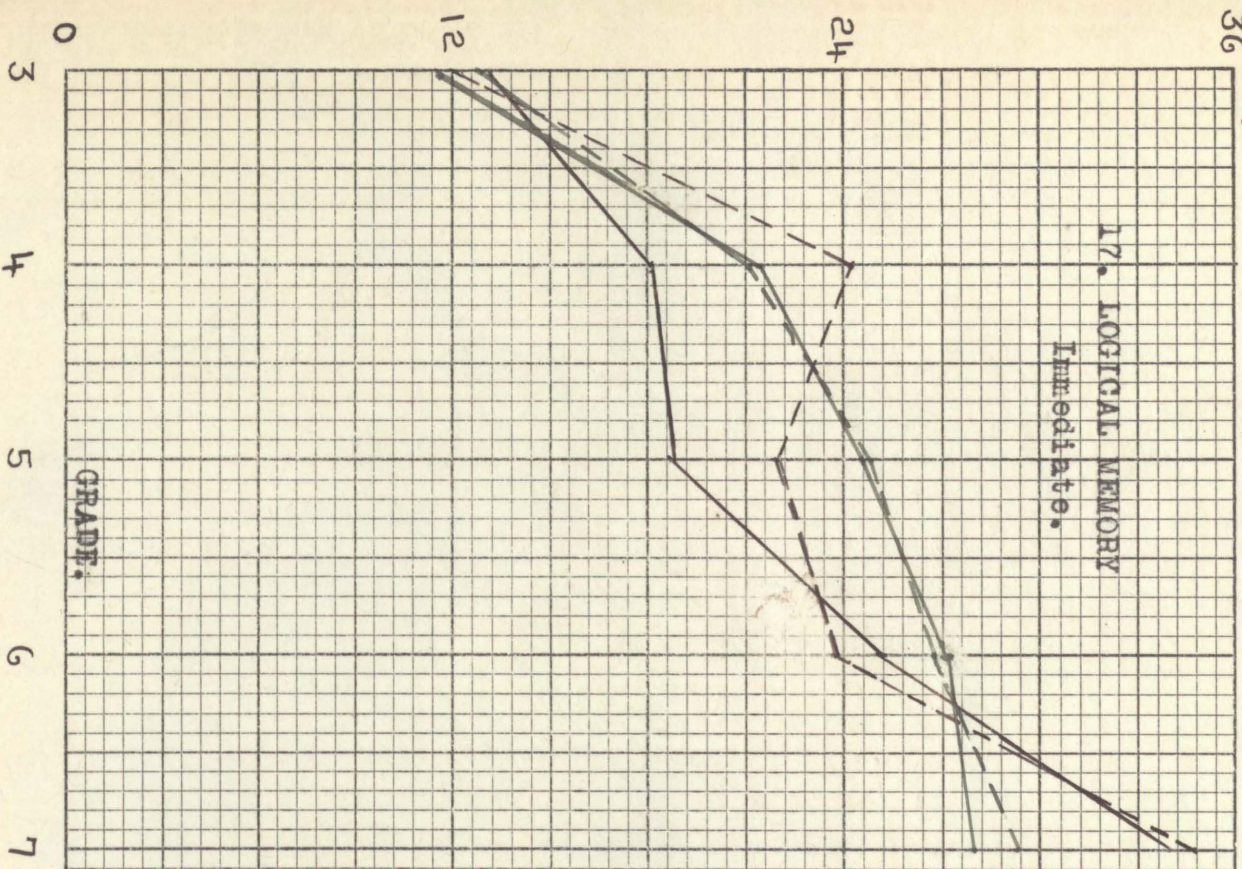


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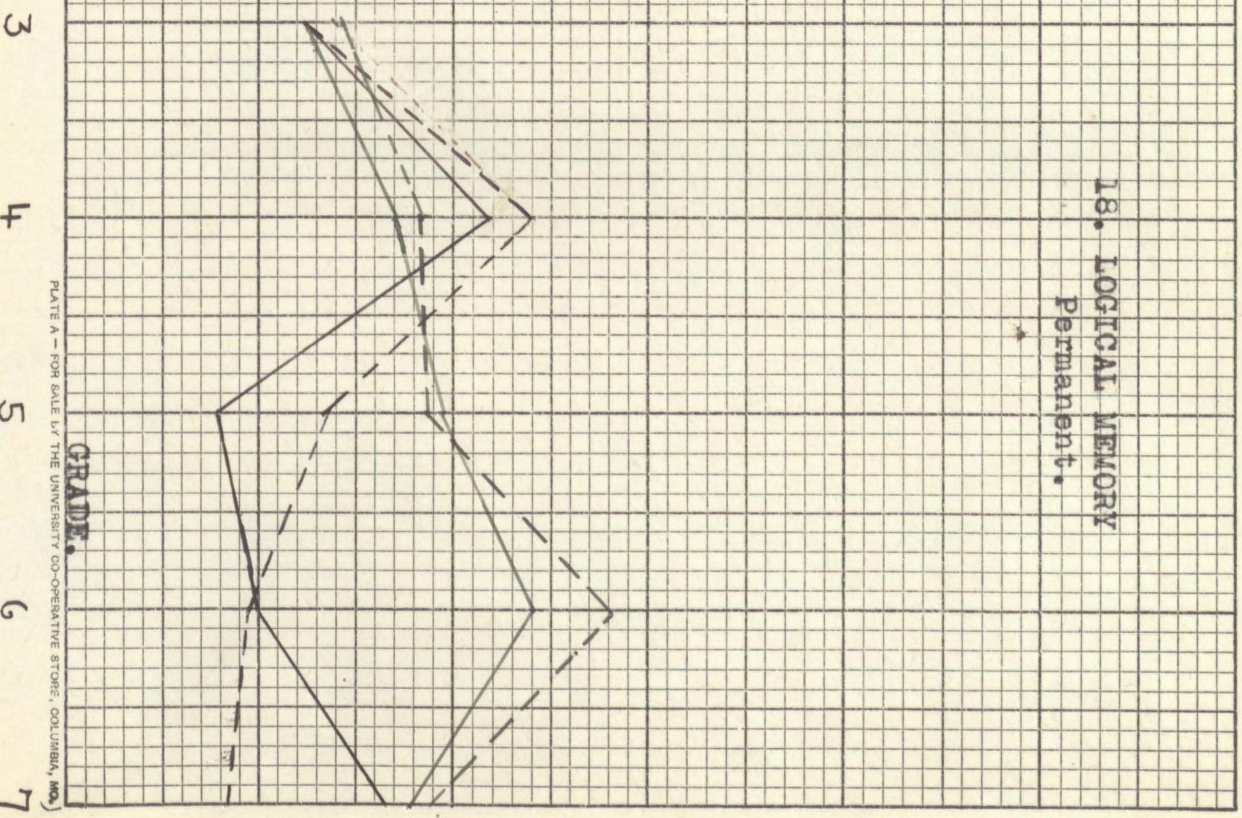
GRADE

36

17. LOGICAL MEMORY
Immediate.



18. LOGICAL MEMORY
Permanent.



GRADE.

GRADE.

24

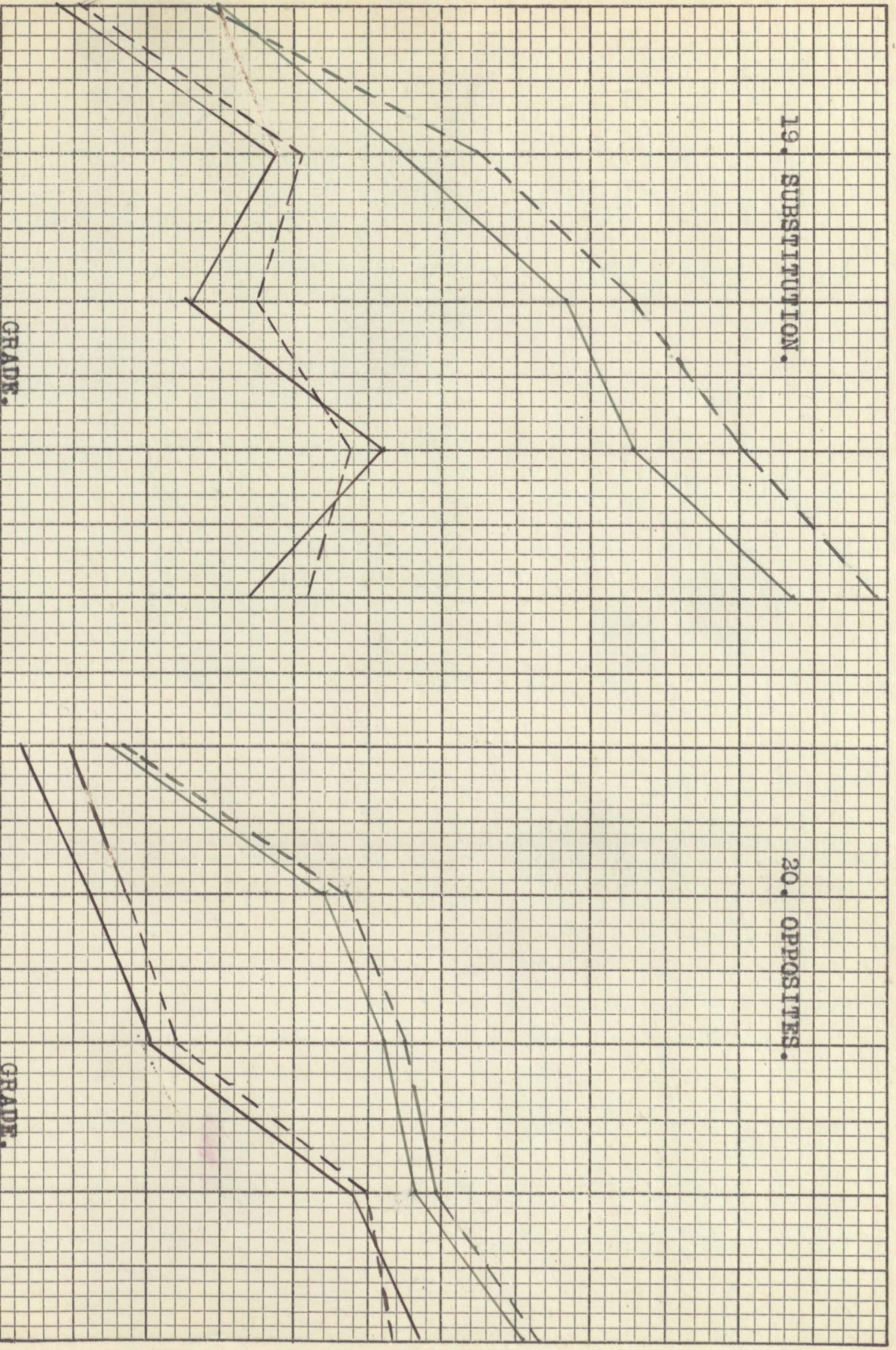
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19. SUBSTITUTION.

20. OPPOSITES.



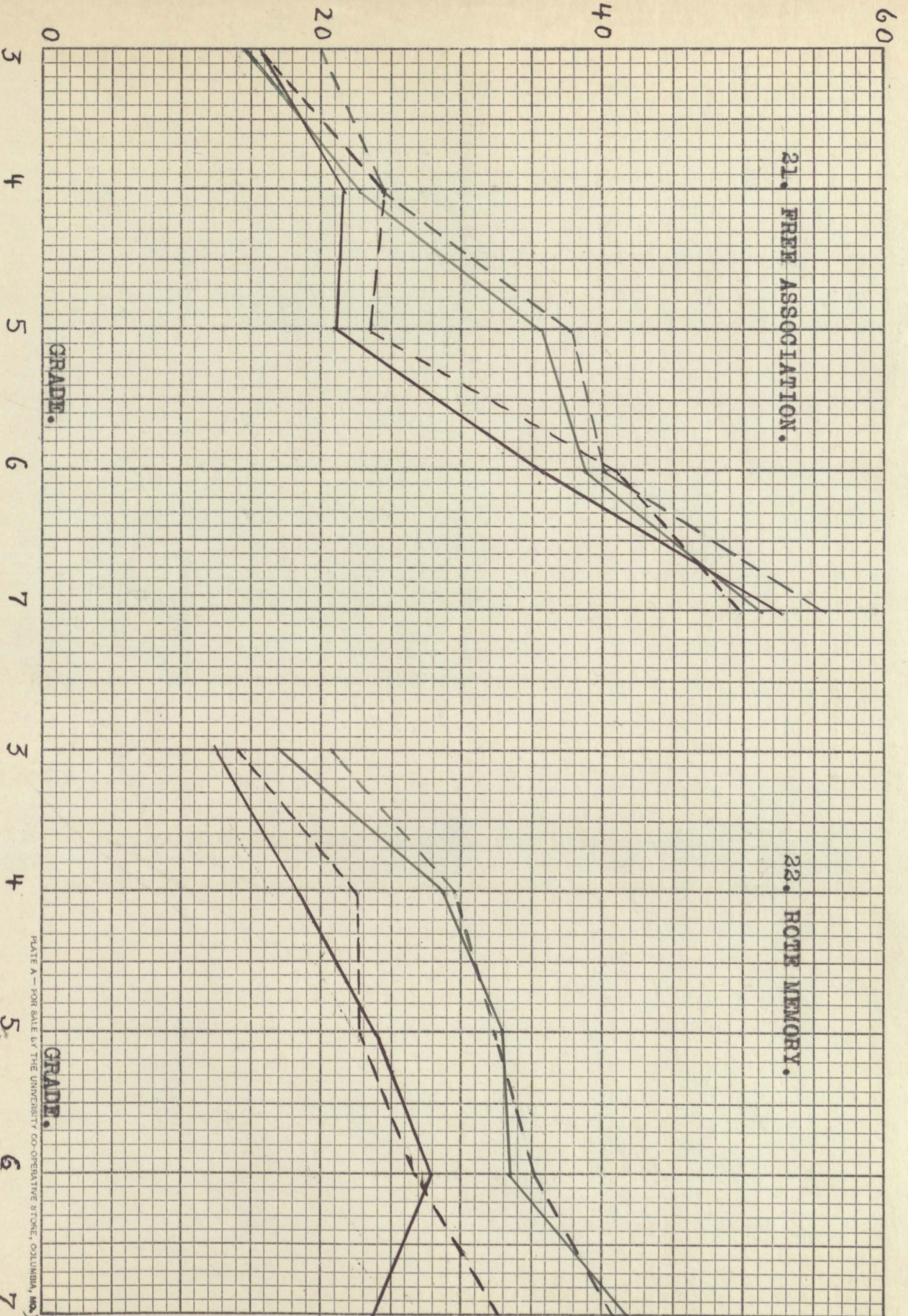


PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

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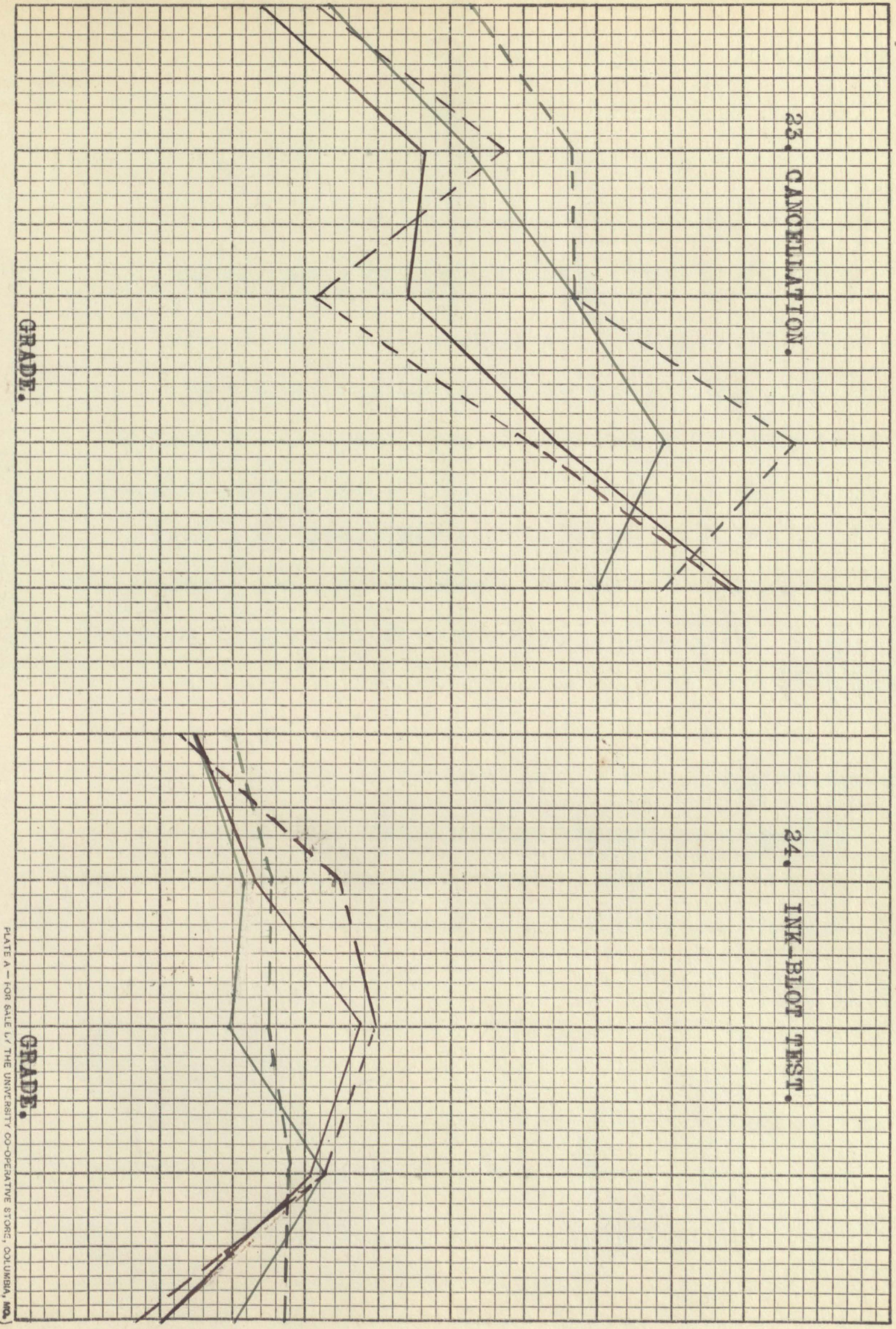
23. CANCELLATION.

24. INK-BLOT TEST.

GRADE.

GRADE.

3 4 5 6 7 3 4 5 6 7



V

MENTAL TESTS IN A WHITE AND A NEGRO SIXTH GRADE

The object of this study is to compare by means of a large number of mental tests the sixth grades in the Douglass (colored) and the Jefferson (white) schools. The sixth grade was chosen, because the average age of the pupils in this grade in the two schools was not very different, and because nearly the same number of pupils were in this grade in each school.

All pupils who were present on both days when the tests were given are counted in the averages. The number of negroes is 10 boys and 18 girls; the number of whites is 14 boys and 15 girls. The average ages are: negro boys, 14 years and 4 months (A.D. 18 months); white boys, 13 years and 4 months (A.D. 15 months); negro girls, 13 years and two months (A.D. 16 months); white girls, 13 years and 0 months (A.D. 16 months). The negro boys average one year older than the white boys, and the negro girls two months older than the white girls. The average deviations are nearly the same.

The tests were given in the afternoon. They were given to the negro grade one day and to the white grade

the following day. The tests and the order in which they were given is as follows: three cancellation tests, --- e,i,o ---; three opposites tests, -- A,B,C --; two Ebbinghaus tests, --"The Strength of the Eagle" and "Why the Mole Is Blind"--; four substitution tests, -- two digit-symbol tests followed immediately by two symbol-digit tests --; one logical memory test, --"The Golden Goose"--; two word-building tests, -- o,e,u,b,n,r and a,e,i,c,h,s --; and two ink-blot tests.

Thirteen days later the following tests were given: one cancellation test, --u--; three Ebbinghaus tests, --* "Why the Mole Is Blind", "Where the Dandelions Went" and "The Donkey and the Grasshopper"--; four substitution tests, -- two digit-symbol tests followed immediately by two symbol-digit tests --; two logical memory tests, --"The Boy Who Would Not Drink" and "The Two Ways" --; two word-building tests, --a,e,u,n,t,r and a,e,o,l,p,m --; one ink-blot test; and two free association tests, --cloud and dog--.

The results of these tests are given in tables XIV to XIX. Table XIV compares white boys and negro boys in all the tests; table XV compares white girls and negro girls in all the tests. In these tables the average standing in the tests, the average deviation and the per cent of difference

*This test was first given as the other Ebbinghaus tests. Every pupil failed entirely. It was then repeated as described on page .

between the averages of the whites and negroes are given. Table XVI summarizes the per cent of difference between whites and negroes. Table XVII compares the two kinds of substitution tests and gives the per cent of gain between succeeding tests of the same kind. Table XVIII compares sexes within each race. Table XIX gives the number of each race that reaches the average of the other race and the per cent this number is of the whole number tested.

In only two of the groups of tests do the negroes equal or excel the whites. The negro boys are superior twice in word-building tests, although they are 6.4 per cent, inferior in the average of the four tests. the negro girls are superior in every word-building test, and are 18.8 per cent superior in the average of all four. In three out of four cancellation tests, the negro boys are superior to the whites, and they are 7.1 per cent superior in all combined. The negro girls are ahead twice in the cancellation tests and exactly equal the white girls in the four combined.

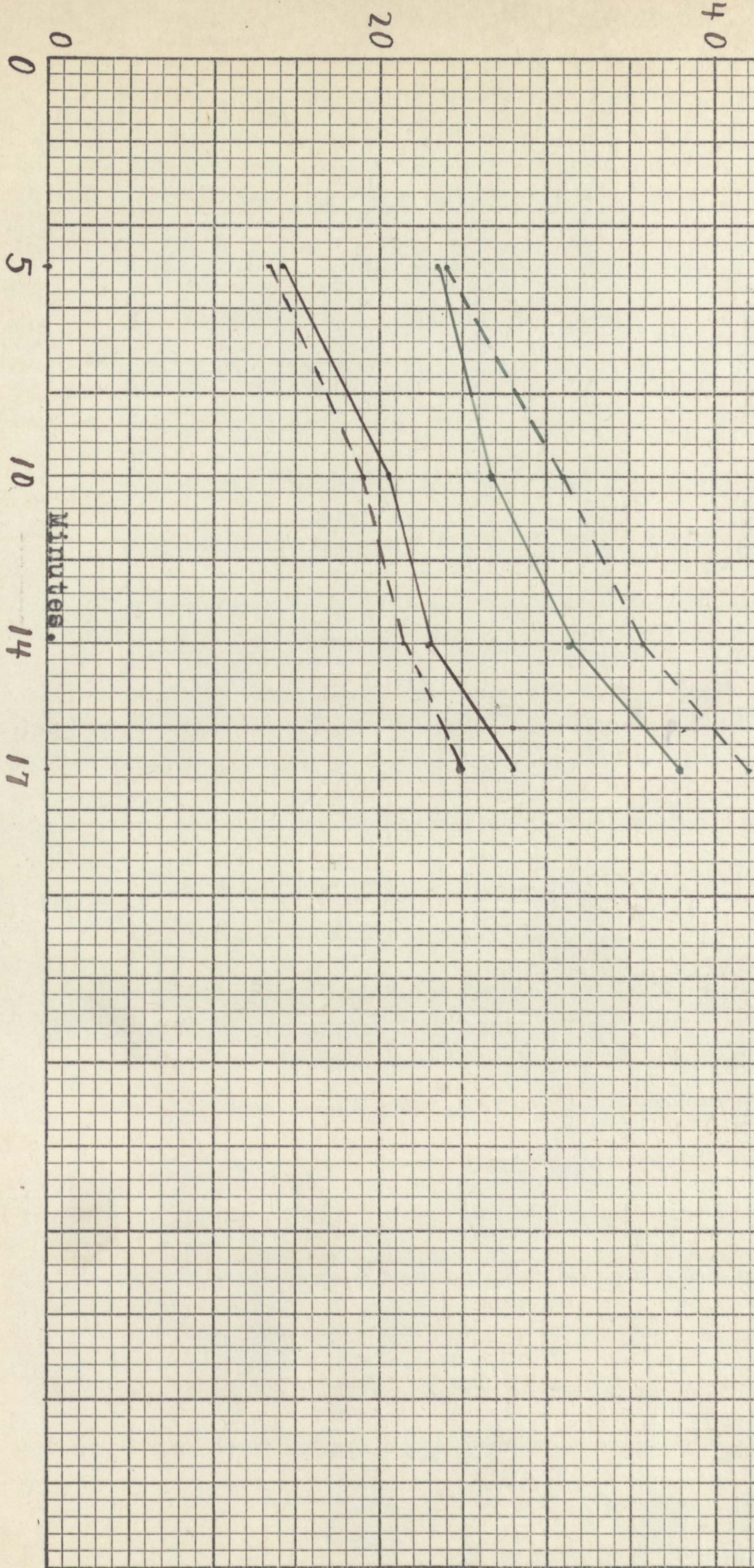
The Ebbinghaus tests show the greatest difference between whites and negroes. Averaging the four tests, the white boys are superior to the negro boys by 167.8 per cent; the white girls are superior to the negro girls by 120.5 per cent. The greatest difference between races

is in the third test, -- "Where the Dandelions Went"---. It is clearly much too difficult for the negroes. The negro boys fill in correctly only 3.2 blanks and the negro girls only 12.1. The white boys are superior to the negro boys by 741 per cent. and the white girls are superior to the negro girls by 238 per cent.. The fourth test, --"The Donkey and the Grasshopper" -- is too easy for both whites and negroes. Five of the white girls and seven of the negro girls make a perfect grade; five white girls and one negro girl miss only one blank. Four white boys and one negro boy make a perfect grade; Five white boys and two negro boys miss only one blank. The average difference in favor of the white boys is 14 per cent., in favor of the white girls is 1.0 per cent.

Considering the four digit-symbol tests, we see that the white boys surpass the negro boys by 50 per cent. in the first test and by 1.4 per cent. in the last test. The white girls surpass the negro girls by 80 per cent. in the first test and by 59 per cent. in the last test. The average per cent. of gain between tests is for the white boys 10.6 per cent., for the negro boys 27.3 per cent.; for the white girls 20.1 per cent., for the negro girls 27.6 per cent. The per cent. of gain between

SUBSTITUTION.

Green = whites
 Black = negroes
 Broken line = girls
 Solid line = boys



the first and last test is for white boys 33.8 per cent., for negro boys 99.3 per cent.; for white girls 72.3 per cent., for negro girls 95.1 per cent. This greater per cent. of improvement of the negroes may be interpreted as meaning that in the first few minutes of practice, -- within the five minutes of the first test -- the whites learned much faster than the negroes. Thereafter, to make the same per cent. of improvement, they would have to make a much greater absolute gain. The accompanying graphs show the relative standing of whites and negroes in these tests.

In the symbol-digit tests the whites make relatively greater improvement than in the digit-symbol tests and the negroes make relatively less improvement. The average improvement between tests is 20.0 per cent. for white boys and 25.6 per cent for negro boys, 21.0 per cent for white girls and 22.8 per cent for negro girls. Between the first and last test the improvement for white boys is 83.7 per cent., for negro boys, 97.1 per cent; for white girls, 76.9 per cent., for negro girls, 84.8 per cent. In the average of the four symbol-digit tests the white boys surpass the negro boys 71.6 per cent, while they surpassed them only 19.8 per cent. in the digit-symbol tests. The white girls surpass the colored girls 72.6 per cent., while they surpassed them only 61.2 per cent.

in the digit-symbol tests. The fact that the whites have a greater superiority over the negroes in the symbol-digit test than they do in the digit-symbol test, may have two possible explanations: (1) In the first test, the whites may have learned certain tricks and methods of learning which they used from the beginning in the second test, making their lead greater in the latter case. (2) In the second test, the negroes may have been hindered more by inhibition from the symbols of the first test than the whites were hindered by inhibition from these symbols.

Comparing the success of the negroes in the various tests with the success of the whites in the tests, the order of difficulty of the tests for the negro^{boys} is: most difficult, the Ebbinghaus tests; then opposites, logical memory, ink-blots, substitution, free association, word-building and cancellation in the order named. For the negro girls, the order is: Ebbinghaus tests, logical memory, substitution, ink-blots, free association, opposites, cancellation and word-building. It is noticeable that opposites, which is second in order of difficulty for boys, is sixth for girls.

From table XVIII it is seen that negro boys are inferior to negro girls in every test except substitution and free association. White boys are inferior to white girls in every test except free association. In all tests

except logical memory, cancellation and substitution, there is more difference between negro boys and negro girls than between white boys and white girls.

Only in word-building and cancellation do fifty per cent or more of the negroes reach the average of the whites. (Table XIX). And only in word-building, in the case of the girls, and in cancellation, in the case of the boys, do less than fifty per cent of the whites reach the average of the negroes. In the Ebbinghaus tests, no negroes reach the average of the whites; all the white girls reach or surpass the average of the negro girls and only 2 out of 14 white boys fail to reach the average of the negro boys.

In logical memory, no negro girl reaches the average of the white girls and only one negro boy reaches the average of the white boys; all the white girls reach or surpass the average of the negro girls and only one of the white boys fails to reach the average of the negro boys. In the symbol-digit test, no negro girl reaches the average of the white girls and only one negro boy reaches the average of the white boys; one white girl fails to reach the average of the negro girls and one white boy fails to reach the average of the negro boys. In free association, no negro boy reaches the average of the white boys. In opposites, all the white boys reach the average of the negro

boys; one negro boy reaches the average of the white boys.

Combining all the tests, the white boys are superior to the negro boys by 50.7 per cent, (table XVI) and the white girls are superior to the negro girls by 41.7 per cent. The white girls are superior to the white boys by 9.8 per cent, (table XVIII) and the negro girls are superior to the negro boys by 16.1 per cent. 75.4 per cent. of the white boys reach or surpass the average of the negro boys, and 77.0 per cent. of the white girls reach or surpass the average of the negro girls. (Table XIX). 21.1 per cent. of the negro boys reach or surpass the average of the white boys, and 21.0 per cent. of the negro girls reach or surpass the average of the white girls.

In all tests combined, the average deviation of the white boys is 7.3, of the negro boys, 6.0, of the white girls, 6.5, of the negro girls, 5.8. (In order to give the average deviation of each test approximately the same bearing in the averages, the average deviation of each test is modified as follows: multiply opposites by 2, Ebbinghaus tests by $\frac{1}{2}$, word-building by 3, ink-blots by 2; free association by $\frac{1}{2}$; the two kinds of substitution tests are added and averaged.

Summary.— The negroes are slightly older than the whites. They make the best showing in the cancellation and word-building tests and the poorest showing in the

Ebbinghaus tests. The negroes are very much inferior in the first substitution tests but approach the whites pretty closely in the last tests. This probably means that the whites, through their very rapid gain during the progress of the first test, early approach a limit of improvement; the negroes approach the same limit, but much more slowly. The superiority of the whites is much greater in the symbol-digit test (which was given second) than in the digit-symbol test.

There is more difference between negro boys and negro girls than between white boys and white girls. There is less difference between negro girls and white girls than between negro boys and white boys. In both races, the girls make the best records in the tests.

About one fifth of the negroes equal or surpass the average of the whites, and about three fourths of the whites equal or surpass the average of the negroes.

The whites are more variable than the negroes and the boys are more variable than the girls.

TABLE XIV.

	<u>BOYS</u>				
	Whites		Negroes		% of
	Av. A.D.	AV. A.D.	AV. A.D.	diff.	
Opposites A.	17.3	2.7	10.5	3.5	65
B.	15.7	3.8	9.2	4.2	71
C.	4.5	1.9	3.5	1.6	29
	<hr/>				
Av.	12.5	2.8	7.7	3.1	62.3
Ebbinghaus Tests.					
I.	46.7	18.7	18.2	7.8	157
II.	69.7	24.2	27.1	16.9	157
III.	26.9	12.6	3.2	3.2	741
IV.	9.9	2.0	8.7	1.7	14
	<hr/>				
Av.	38.3	14.4	14.3	7.4	167.8
Word Building. I.	7.6	2.5	6.1	1.7	25
II.	6.4	2.4	6.9	1.5	7.8*
III.	9.9	3.2	10.9	3.3	10*
IV.	9.4	2.8	7.3	1.9	29
	<hr/>				
Av.	8.3	2.7	7.8	2.1	6.4
Logical Memory. I.	42.3	10.3	26.0	15.6	62
II.	25.1	7.4	14.6	5.7	72
III.	35.6	5.2	26.3	6.1	35
	<hr/>				
Av.	34.3	7.6	22.6	9.1	51.8
Ink Blot Tests. I.	7.1	4.2	6.4	3.4	11
II.	10.9	3.2	4.5	2.9	142
III.	9.3	5.0	7.4	3.5	26
	<hr/>				
Av.	9.1	4.1	6.1	3.5	49.2

TABLE XIV. (Continued).

		BOYS				
		Whites		Negroes		% of
		Av.	A.D.	Av.	A.D.	diff.
Cancellation	"e".	12.2	2.4	16.1	2.8	31*
	"i".	15.0	4.5	13.9	2.1	7.9
	"o".	19.6	4.5	20.6	2.0	5.1*
	"u".	9.6	2.3	9.9	3.1	3.1*
	Av.	14.1	3.4	15.1	2.5	7.1*
Digit-Symbol	I.	21.6	4.8	14.3	4.2	50
	II.	26.7	4.6	21.6	6.9	24
	III.	26.9	5.8	22.4	6.4	20
	IV.	28.9	6.9	28.5	8.0	1.4
	Av.	26.0	5.5	21.7	6.4	19.8
Symbol-Digit	I.	25.7	4.8	14.0	4.2	84
	II.	26.5	7.4	18.9	5.5	40
	III.	35.6	9.6	23.2	4.5	53
	IV.	47.2	13.4	27.6	6.7	71
	Av.	33.8	9.9	20.9	5.6	61.7
Free Ass'n.	I.	50.3	13.0	36.9	12.7	36
	II.	50.8	14.9	38.3	8.2	33
	Av.	50.6	14.0	37.7	10.5	34.2

*An asterisk indicates that the difference is in favor of the negroes.

TABLE XV.

	<u>GIRLS</u>					
	Whites		Negroes		%of	
	Av. A.D.		Av. A.D.		diff.	
Opposites A.	16.8	4.0	13.0	4.8	29	
B.	16.0	3.2	11.8	2.8	36	
C.	6.0	2.2	4.8	2.1	25	
Av.	12.9	3.1	9.9	3.0	30.3	
Ebbinghaus Tests. I.	52.2	12.2	28.4	10.0	84	
II.	72.9	17.7	29.4	16.4	148	
III.	40.9	10.3	12.1	6.6	238	
IV.	10.2	1.7	10.1	1.6	1.0	
Av.	44.1	10.5	20.0	8.7	120.5	
Word Building. I.	6.7	2.5	9.5	2.8	42*	
II.	7.1	1.2	7.4	2.3	4.2*	
III.	11.5	2.8	13.1	2.9	14*	
IV.	8.8	1.5	10.2	3.6	16*	
Av.	8.5	2.0	10.1	2.8	18.8*	
Logical Memory. I.	52.1	6.1	38.1	6.2	37	
II.	30.7	6.2	17.1	5.0	80	
III.	45.1	5.5	29.2	6.6	54	
Av.	42.8	5.9	28.1	5.9	52.3	
Ink Blot Tests. I.	8.8	2.5	6.4	2.2	38	
II.	11.0	4.0	5.7	1.7	93	
III.	9.9	3.7	8.9	2.3	11	
Av.	9.9	3.4	7.0	2.1	41.4	

TABLE XV. (Continued).

		<u>GIRLS</u>				
		Whites		Negroes		% of
		Av.	A.D.	Av.	A.D.	diff.
Cancellation.	"e".	14.3	2.5	18.3	2.9	29*
	"i".	18.7	3.9	16.6	4.0	13
	"o".	22.9	4.8	21.7	3.1	5.5
	"u".	10.3	3.2	9.5	2.0	8.4
	Av.	16.5	3.6	16.5	3.0	0.0
Digit-Symbol.	I.	22.0	4.8	12.2	5.5	80
	II.	28.8	5.2	19.7	7.7	46
	III.	32.3	7.0	19.4	5.9	65
	IV.	37.9	8.8	23.8	6.9	59
	Av.	30.3	6.8	18.8	6.5	61.2
Symbol-Digit.	I.	26.0	4.9	14.5	4.7	79
	II.	32.8	6.7	18.8	5.5	74
	III.	38.8	8.0	23.0	6.9	69
	IV.	46.0	12.1	26.8	6.5	71
	Av.	35.9	7.9	20.8	5.7	72.6
Free Ass'n.	I.	47.9	15.3	36.8	11.6	30
	II.	49.3	11.9	32.2	9.1	53
	Av.	48.6	13.6	34.5	10.4	40.9

*An asterisk indicates that the difference is in favor of the negroes.

TABLE XVI

	<u>BOYS</u>		<u>GIRLS</u>	
	Whites	Negroes	Whites	Negroes
Opposites	62.3		30.3	
Ebbinghaus	167.8		120.5	
Word Building	6.4			18.8
Logical Memory	51.8		52.3	
Ink Blot	49.2		41.4	
Cancellation		7.1	0.0	0.0
Substitution	40.8		66.9	
Free Ass'n	34.2		40.9	
Average	50.7		41.7	

TABLE XVII.

<u>BOYS</u>				
	Digit-Symbol		Symbol-Digit	
	Whites	Negroes	Whites	Negroes
%of gain between tests:				
no. 1 & 2.	23.6	51.0	3.1	35.0
no. 2 & 3.	0.7	3.7	34.3	22.8
no. 3 & 4.	7.4	27.2	32.6	19.0
Av.	10.6	27.3	20.0	25.6
no. 1 & 4.	33.8	99.3	83.7	97.1

<u>GIRLS</u>				
	Digit-Symbol		Symbol-Digit	
	Whites	Negroes	Whites	Negroes
%of gain between tests:				
no. 1 & 2.	30.9	61.5	26.2	29.7
no. 2 & 3.	12.2	-1.5	18.3	22.3
no. 3 & 4.	17.3	22.7	18.8	16.5
Av.	20.1	27.6	21.1	22.8
no. 1 & 4.	72.3	95.1	76.9	84.8

TABLE XVIII.

	WHITES		NEGROES	
	Boys	Girls	Boys	Girls
Opposites		3.2		28.6
Ebbinghaus		15.1		39.9
Word Building		2.4		29.5
Logical Memory		24.8		24.3
Ink Blot		8.8		14.8
Cancellation		17.0		9.3
Substitution		11.4	8.0	
Free Ass'n	4.1		9.3	
Average		9.8		16.1

TABLE XIX.

	WHITES				NEGROES			
	Boys		Girls		Boys		Girls	
	no.	%	no.	%	no.	%	no.	%
Opposites	14	100.0	13	86.7	1	10.0	4	22.2
Ebbinghaus	12	85.7	15	100.0	0	0.0	0	0.0
Word Building	9	64.3	3	20.0	5	50.0	13	72.2
Logical Memory	13	92.9	15	100.0	1	10.0	0	0.0
Ink Blot	10	71.4	11	73.3	1	10.0	3	16.7
Cancellation	3	21.4	8	53.3	7	70.0	10	55.6
Digit-Symbol	11	78.6	14	93.3	3	30.0	1	5.6
Symbol-Digit	13	92.9	14	93.3	1	10.0	0	0.0
Free Ass'n	10	71.4	11	73.3	0	0.0	3	16.7
Average		75.4		77.0		21.1		21.0

VI

THE INFLUENCE OF SOCIAL POSITION ON
STANDING IN MENTAL TESTS

After determining the relative standing of a group of negroes and a group of whites in a number of mental tests, there at once arises the problem of how much of the difference is due to difference in social position and how much to difference in inherent mental ability. As an attempt to solve this problem, the pupils in the negro school and in a white sixth grade in Columbia are divided into two groups: A, those pupils living in good homes; B, those living in poor homes. The two groups are then compared with one another and with the other race.

The teacher of each grade was asked to check, on a list of her pupils, the names of all living in good, cleanly homes with industrious parents, taking an interest in their children and able to properly care for them. The teachers were acquainted with the home conditions in all but a few cases, in which the pupils lived in a remote part of town. Such pupils are left out of the

averages. In the negro school 145 pupils were checked as living in good homes, and 105 were left unchecked as living in poor homes.

The averages in each test for the ages 8 to 16 are computed for each group of negroes. Tables XX and XXI give the rank in each test for each group. In tables XXII and XXIII the original figures are modified as described on page 50 ; in addition the ink-blot test and the permanent logical memory test are used, the grades in each being doubled. The averages for the whites and the two groups of negroes in each test when all ages are combined are given in table XXIV; and the averages for each age when all tests are combined are given in table XXV. Tables XXIV and XXV are figured from tables XXII and XXIII, and from table Xb. Table XXV is represented by graphs 25 and 26. Table XXVI gives the difference between the two groups of negroes and the difference between the best group of negroes and the average of the whites in per cents.

The greatest difference between the two groups of negroes occurs in substitution, controlled association and permanent logical memory. In the ink-blot test, in free association and also in immediate logical memory the difference is small. The average per cent of

difference between group A and group B is 31.7 for boys and 26.0 for girls. When all tests are combined, group A boys are 22.1 per cent superior to group B boys, and group A girls are 21.2 per cent superior to group B girls. At 8 years group B boys are superior to group A boys; at 8 and at 15 years group B girls are superior to group A girls. The retardation in the mental efficiency curve at 10 and 12 years is especially marked for group B girls.

Considering group A negroes and the average of the whites, there is a great difference in favor of the whites in controlled association, and substitution. In free association and rote memory, the difference is only moderate and it is still less in both immediate and permanent logical memory. In cancellation the negroes are slightly superior to the whites. The average per cent of difference between group A negroes and whites is 37.2 for boys and 34.3 for girls. When all tests are combined, the whites are superior to the group A negroes at all ages, and combining all ages, the whites are superior to the negroes by 30.2 per cent for the boys and by 28.3 per cent for the girls. The difference in mental ability between whites and negroes decreases slightly more with age in the case of group A negroes than in the case of group B negroes.

Tables XXVII to XXIX compare a white and a negro sixth grade, each being divided into two groups according to home conditions. The pupils in the white grade are too nearly of the same social standing to make a division into two social groups easy. An attempt at such division is made, but as shown in the tables, there is very little difference in mental ability in the two groups.

Table XXVII gives the ranking of each group in each test. Table XXVIII is obtained by averaging all the tests of each kind and then treating the averages as follows, so that each kind of test will have about the same bearing in the final average: The opposites test is multiplied by 2; the Ebbinghaus test, by $\frac{1}{2}$; the word-building test, by 2; the ink-blot test, by 2; the logical memory test, by $\frac{2}{3}$; the cancellation test, by $\frac{3}{2}$; the substitution test is the average of the first digit-symbol and the first symbol-digit test; free association is multiplied by $\frac{1}{2}$. Table XXIX gives the per cent of difference between group B whites and group A negroes.

Group A white boys are 9 months younger than group B white boys, and group A white girls are 5 months younger than group B white girls. Group A negro boys are 19 months younger than group B negro boys, and group A negro girls are 21 months younger than group B negro girls.

Group B white boys are superior to group A negro boys in every kind of test used. In cancellation and word-building the difference is very small. The greatest difference occurs in the Ebbinghaus and substitution tests; and the difference in logical memory and in the ink-blot test is moderately large. Group B white girls are superior to group A negro girls in every kind of test except word-building. In the ink-blot test there is no difference and there is only 1.1 per cent difference in cancellation. In the Ebbinghaus tests the white girls are 102.7 per cent superior and are considerably superior in substitution, logical memory and free association. Omitting ink-blot, cancellation and free association, the average difference between group B whites and group A negroes is 25.6 per cent for boys and 38.1 per cent for girls. When all tests are combined, the difference is 22.1 per cent for boys and 36.0 per cent for girls.

Combining all tests, the difference between group A whites and group B whites is less than one per cent in favor of group B for the boys and is 5.7 per cent in favor of group A for the girls. The difference between group A negroes and group B negroes is 34.9 per cent for the boys and 18.8 per cent for the girls, the difference being in favor of the A group in each case. Omitting

ink-blot, cancellation and free association, the difference between group A whites and group B whites is 2.0 per cent for boys and 1.6 per cent for girls, in favor of group A in each case. The difference between group A negroes and group B negroes is 52.3 per cent for boys and 18.3 per cent for girls, in favor of group A in each case.

To summarize; the tests most affected by social position are substitution, controlled association, permanent logical memory and the Ebbinghaus tests. The ability in the tests of negro girls is less affected by difference in social position than the ability in the tests of negro boys. The difference between the better class of the negroes and the average of the whites is still great. The greatest difference between whites and negroes occurs in the controlled association, Ebbinghaus, substitution and logical memory tests.

TABLE XX.

BOYS

Age		8	9	10	11	12	13	14	15	16	Av.
Log. Mem. Immed.	<u>A</u>	13.3	11.0	17.9	30.8	26.0	21.8	24.6	23.3	21.5	21.1
	<u>B</u>	8.0	15.0	15.8	17.6	17.8	20.0	23.7	23.0	25.8	18.5
Log. Mem. Per.	<u>A</u>	7.0	12.0	10.6	13.8	15.7	11.2	4.8	6.6	9.0	10.1
	<u>B</u>	5.0	8.7	7.3	19.4	8.0	7.5	7.8	0.0	1.0	7.2
Subst. Dig-Sym.	<u>A</u>	1.0	5.7	5.1	5.0	9.1	13.1	15.4	17.2	26.0	10.8
	<u>B</u>	0.0	3.2	4.1	4.3	6.0	10.2	7.6	9.1	20.2	7.3
Subst. Sym-Dig.	<u>A</u>	1.9	6.6	6.7	6.9	6.8	16.8	16.2	17.2	21.6	11.2
	<u>B</u>	0.6	3.2	4.1	4.3	6.0	10.2	7.6	9.1	20.2	7.3
Rote Mem Concrete	<u>A</u>	16.3	23.5	22.1	27.3	27.3	34.0	33.1	42.2	46.0	30.2
	<u>B</u>	23.0	20.6	20.3	21.1	25.8	27.7	29.1	34.0	42.5	27.1
Rote Mem Abstract	<u>A</u>	5.5	8.0	13.8	20.0	14.0	26.7	27.0	36.5	40.5	21.3
	<u>B</u>	9.0	8.6	9.0	10.3	14.2	16.4	20.0	20.0	37.5	16.1
Ink-Blot	<u>A</u>	3.8	5.0	9.0	3.8	7.3	5.4	6.5	6.5	15.3	7.0
	<u>B</u>	5.5	4.9	4.3	5.4	8.0	4.4	8.0	12.0	9.5	6.9
Cancel.	<u>A</u>	4.6	10.0	10.9	13.5	11.8	16.4	16.2	19.4	16.5	13.3
	<u>B</u>	9.3	8.1	8.0	7.3	9.3	12.1	16.3	15.3	13.4	11.0
F. Ass'n	<u>A</u>	16.0	21.0	16.3	20.8	24.0	41.0	30.6	32.4	32.3	26.0
	<u>B</u>	17.5	18.4	17.8	20.9	26.4	24.7	33.4	33.0	41.5	26.0
Opposites	<u>A</u>	2.0	4.0	1.6	7.0	5.2	9.5	9.0	11.8	10.7	6.8
	<u>B</u>	1.0	0.7	0.8	1.8	3.6	4.3	3.6	5.8	9.9	3.5
Gen.-Sp.	<u>A</u>	0.8	0.5	1.8	2.3	2.7	2.6	4.5	5.6	5.4	2.9
	<u>B</u>	1.0	0.9	0.5	0.6	1.9	1.6	1.4	0.4	4.0	1.4
Part-Wh.	<u>A</u>	0.8	1.5	2.4	3.8	2.9	6.9	8.2	8.0	6.7	4.6
	<u>B</u>	1.5	1.0	1.0	1.4	1.9	3.7	4.0	7.1	6.7	3.1

TABLE XXI.

GIRLS

Age		8	9	10	11	12	13	14	15	16	Av.
Log.Mem. Immed.	<u>A</u>	12.1	20.4	21.0	31.9	27.5	23.2	27.3	23.6	26.8	23.8
	<u>B</u>	16.0	31.0	13.0	23.0	13.8	25.3	29.3	32.8	27.5	23.5
Log.Mem. Per.	<u>A</u>	6.5	11.1	8.3	13.2	9.1	9.1	7.2	14.9	11.3	10.1
	<u>B</u>	12.0	0.0	4.3	7.0	0.5	7.8	6.3	7.8	9.3	6.1
Subst. Dig-Sym.	<u>A</u>	0.4	7.7	3.2	8.4	9.7	11.3	22.3	10.8	25.8	11.1
	<u>B</u>	2.9	2.6	0.9	6.9	3.4	7.0	10.5	16.6	22.7	8.2
Subst. Sym-Dig,	<u>A</u>	1.8	10.1	5.7	11.2	8.5	13.9	24.2	13.9	23.1	12.5
	<u>B</u>	2.3	4.2	2.9	9.7	3.3	3.8	10.9	13.2	26.0	8.5
Rote Mem. Concrete	<u>A</u>	15.6	23.4	26.5	30.5	38.0	36.1	47.8	37.1	48.0	33.7
	<u>B</u>	23.3	21.7	21.8	28.4	25.0	31.2	39.4	41.2	46.3	30.9
Rote Mem. Abstract	<u>A</u>	7.7	14.0	17.3	18.0	29.8	26.6	40.5	23.0	45.4	24.7
	<u>B</u>	10.0	13.0	7.6	13.6	17.5	19.2	28.9	35.4	42.8	20.9
Ink-Blot	<u>A</u>	4.6	8.1	8.0	10.4	7.7	8.3	7.5	8.6	6.3	7.7
	<u>B</u>	3.3	4.0	5.3	11.8	8.0	5.4	11.1	5.3	7.0	6.8
Cancel.	<u>A</u>	7.8	9.0	11.2	13.5	14.9	15.0	21.4	18.6	20.7	14.7
	<u>B</u>	6.8	6.0	10.4	10.2	10.3	13.4	18.3	22.3	16.9	13.0
F. Ass'n	<u>A</u>	16.6	23.7	20.8	36.7	45.4	35.7	33.4	22.4	42.5	30.8
	<u>B</u>	21.3	21.0	18.6	25.4	13.3	20.5	36.4	38.0	30.3	25.0
Opposites	<u>A</u>	1.5	2.8	4.4	7.5	9.9	10.0	10.4	7.5	12.3	7.4
	<u>B</u>	3.7	3.7	1.2	5.2	3.4	2.8	8.5	10.8	10.4	5.5
Gen.-Sp.	<u>A</u>	0.8	2.7	2.0	3.6	3.7	4.9	7.2	3.6	5.0	3.7
	<u>B</u>	2.3	0.7	0.6	5.0	1.5	2.1	3.2	5.3	11.3	3.5
Part-Wh.	<u>A</u>	1.1	2.0	4.9	5.1	7.1	8.3	9.8	6.3	9.1	6.0
	<u>B</u>	0.7	2.7	1.0	4.9	1.5	2.1	6.2	7.0	8.7	3.9

TABLE XXII.

BOYS

Age		8	9	10	11	12	13	14	15	16	Av.
Log.Mem. Immed.	<u>A</u>	13.3	11.0	17.9	30.8	26.0	21.8	24.6	23.3	21.5	21.1
	<u>B</u>	8.0	15.0	15.8	17.6	17.8	20.0	23.7	23.0	25.8	18.5
Log.Mem. Per.	<u>A</u>	14.0	24.0	21.2	27.6	31.4	22.4	9.6	13.2	18.0	20.2
	<u>B</u>	10.0	17.4	14.6	38.8	16.0	15.0	15.6	0.0	2.0	14.4
Subst.	<u>A</u>	2.2	9.3	8.8	9.0	12.0	22.5	23.7	25.8	35.7	16.6
	<u>B</u>	0.5	3.2	5.4	5.7	6.7	12.0	11.4	11.1	27.2	9.2
Rote Mem.	<u>A</u>	10.9	15.6	18.0	23.7	20.7	30.4	30.1	39.4	43.3	25.8
	<u>B</u>	16.0	14.6	14.7	15.7	20.0	22.1	24.6	27.0	40.0	21.6
Cancel.	<u>A</u>	9.2	20.0	21.8	27.0	23.6	32.8	32.4	38.8	33.0	26.5
	<u>B</u>	18.6	16.2	16.0	14.6	18.6	24.2	32.6	30.6	26.8	22.0
F. Ass'n	<u>A</u>	16.0	21.0	16.3	20.8	24.0	41.0	30.6	32.4	32.3	26.0
	<u>B</u>	17.5	18.4	17.8	20.9	26.4	24.7	33.4	33.0	41.5	26.0
Con.Ass'n	<u>A</u>	3.6	6.0	5.8	13.1	10.8	19.0	21.7	25.4	22.8	14.2
	<u>B</u>	3.5	2.6	2.3	3.8	7.4	9.6	9.0	13.3	20.6	8.0
Ink-Blot	<u>A</u>	11.4	15.0	27.0	11.4	21.9	16.2	19.5	19.5	45.9	20.9
	<u>B</u>	16.5	14.7	12.9	16.2	24.0	13.2	24.0	36.0	28.5	20.7
Average	<u>A</u>	10.1	15.2	17.1	20.4	21.3	25.8	24.0	27.3	31.5	21.5
	<u>B</u>	11.3	12.8	12.4	16.6	17.1	17.6	21.8	21.8	26.5	17.6

TABLE XXIII.

GIRLS

Age	8	9	10	11	12	13	14	15	16	Av.
Log.Mem. Immed.	<u>A</u> 12.1	20.4	21.0	31.9	27.5	23.2	27.3	23.6	26.8	23.8
	<u>B</u> 16.0	31.0	13.0	23.0	13.8	25.3	29.3	32.8	27.5	23.5
Log.Mem. Per.	<u>A</u> 13.0	22.2	16.6	26.4	18.2	18.2	14.4	29.8	22.6	20.1
	<u>B</u> 24.0	0.0	8.6	14.0	1.0	15.6	12.6	15.6	19.6	12.2
Subst.	<u>A</u> 1.6	13.5	6.7	14.7	13.8	18.9	34.9	18.6	36.6	17.7
	<u>B</u> 3.9	5.1	2.8	12.5	5.1	8.1	16.0	22.5	36.6	12.5
Rote Mem.	<u>A</u> 11.7	18.7	21.9	24.3	33.9	31.4	44.2	30.1	46.7	29.2
	<u>B</u> 16.7	17.4	14.7	21.0	21.3	25.2	34.2	38.3	44.6	25.9
Cancel.	<u>A</u> 15.6	18.0	22.4	27.0	29.8	30.0	42.8	37.2	41.4	29.4
	<u>B</u> 13.6	12.0	20.8	20.4	20.6	26.8	36.6	44.6	33.8	25.5
F. Ass'n	<u>A</u> 16.6	23.7	20.8	36.7	45.4	35.7	33.4	22.4	42.5	30.8
	<u>B</u> 21.3	21.0	18.6	25.4	13.3	20.5	36.4	38.0	30.3	25.0
Con.Ass'n	<u>A</u> 3.4	7.5	11.3	16.2	20.7	23.2	27.4	17.4	26.4	17.1
	<u>B</u> 6.7	7.1	2.8	15.1	6.4	7.0	17.9	23.1	28.4	12.7
Ink-Blot	<u>A</u> 13.8	24.3	24.0	31.2	23.1	24.9	22.5	25.8	18.9	23.2
	<u>B</u> 9.9	12.0	15.9	35.4	24.0	16.2	33.3	15.9	21.0	20.4
Average	<u>A</u> 11.0	18.6	18.1	26.1	26.5	25.7	30.9	25.7	33.1	24.0
	<u>B</u> 14.0	13.2	12.1	20.9	13.2	18.1	27.1	28.9	30.1	19.8

TABLE XXIV.

	Immed. Log. Memory	Per. Log. Memory	Substitution	BOYS			
				Rote Memory	Cancellation	Free Association	Controlled Association
Whites	23.5	21.6	28.7	33.8	25.6	31.9	31.1
Negroes <u>A</u>	21.1	20.2	16.6	25.8	26.5	26.0	14.2
<u>B</u>	18.5	14.2	9.2	21.6	22.0	26.0	8.0
	GIRLS						
Whites	25.3	23.4	32.8	35.8	29.3	35.4	33.3
Negroes <u>A</u>	23.8	20.1	17.7	29.2	29.4	30.8	17.1
<u>B</u>	23.5	12.2	12.5	25.9	25.5	25.0	12.7

TABLE XXV.

BOYS

Age	8	9	10	11	12	13	14	15	16	Av.
Whites	18.5	22.2	25.1	28.0	29.5	31.6	34.6	35.6	37.0	29.1
Negroes <u>A</u>	9.2	14.0	14.8	20.7	19.5	27.9	27.1	31.0	31.4	21.8
<u>B</u>	9.7	11.7	11.9	13.0	16.1	18.8	22.5	23.1	30.3	17.6

GIRLS

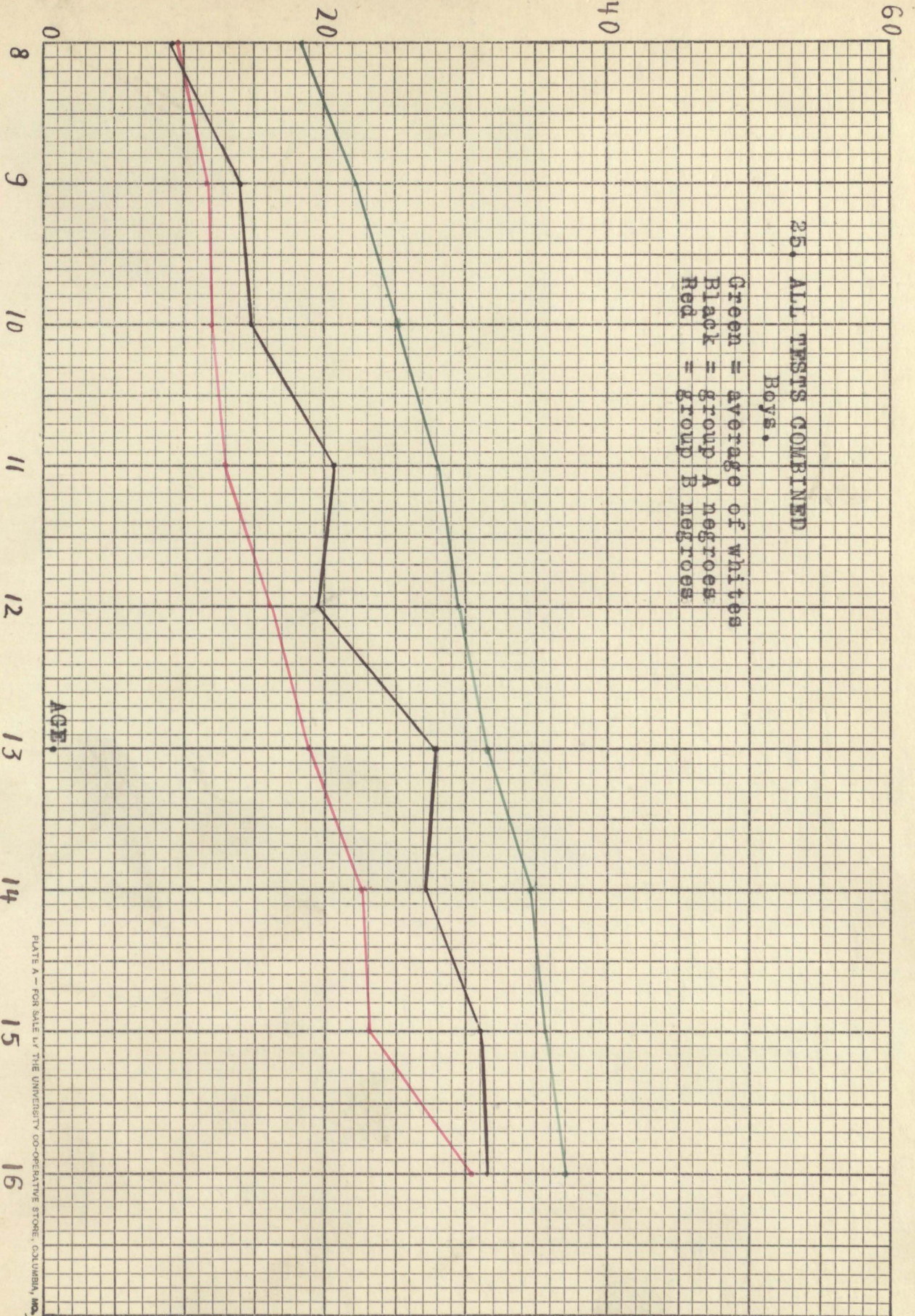
Age	8	9	10	11	12	13	14	15	16	Av.
Whites	19.9	23.7	27.8	30.3	32.6	34.1	37.5	38.7	42.6	31.9
Negroes <u>A</u>	10.2	17.0	17.4	25.2	28.5	27.1	35.1	25.0	37.2	24.8
<u>B</u>	13.0	15.6	12.0	19.6	13.4	18.8	28.5	33.3	33.4	21.0

TABLE XXVI.

	% of diff. between group A and group B negroes		% of diff. between whites and group A negroes	
	boys	girls	boys	girls
Immed. Log. Memory	14.1	1.3	11.4	6.3
Per. Log. Memory	40.3	65.6	6.9	16.4
Substitution	80.4	41.6	72.9	85.3
Rote Memory	19.5	12.7	31.0	22.6
Cancellation	20.5	15.3	3.5*	0.3*
Free Association	0.0	23.2	22.7	14.9
Controlled Ass'n	77.5	34.6	119.0	94.7
Ink-Blots	1.0	13.7		
Average	31.7	26.0	37.2	34.3
All Tests Combined	22.1	21.2	30.2	28.3

* A star indicates a difference in favor of the negroes; otherwise the difference is in favor of the whites.

25. ALL TESTS COMBINED
Boys.
Green = average of whites
Black = group A negroes
Red = group B negroes



60

40

20

0

8

9

10

11

12

13

14

15

16

26. ALL TESTS COMBINED

Girls.

Green = average of whites
 Black = group A negroes
 Red = group B negroes

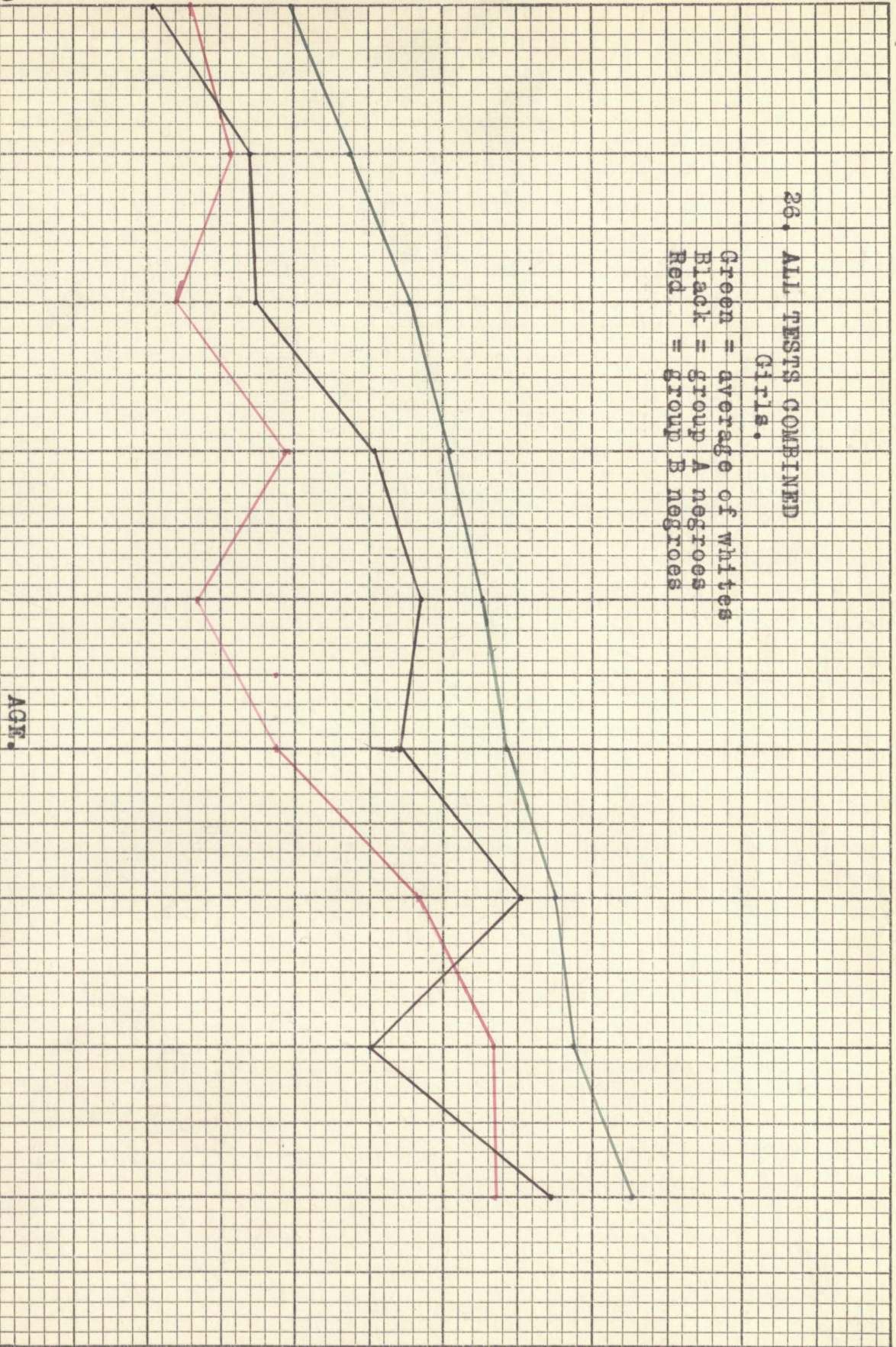


TABLE XXVII.

	BOYS				GIRLS				
	Whites		Negroes		Whites		Negroes		
	A	B	A	B	A	B	A	B	
Opposites	A	27.9	15.8	12.8	8.3	17.2	17.0	14.5	10.0
	B	11.3	12.5	12.0	6.4	16.4	16.0	12.9	9.6
	C	5.7	3.5	4.3	2.7	5.6	5.6	5.0	4.5
	Av.	11.6	10.6	9.7	5.8	13.1	12.9	10.8	8.0
Ebbinghaus	I	49.1	38.2	22.6	13.8	53.2	52.8	31.5	22.3
	II	73.0	58.0	39.0	15.2	74.7	74.5	33.3	25.5
	III	29.9	13.4	3.0	3.4	41.1	42.0	13.1	10.2
	IV	11.0	7.8	10.2	7.2	10.3	10.3	10.5	9.7
	Av.	40.8	29.4	18.7	9.9	44.8	44.9	22.1	16.9
Word-Building	I	5.0	9.1	6.8	5.4	6.4	7.7	10.1	8.3
	II	4.0	7.4	5.8	8.0	7.6	7.0	7.0	8.3
	III	9.2	10.3	13.4	8.4	11.6	11.0	13.8	11.7
	IV	9.4	9.3	8.6	6.0	9.1	8.6	10.8	9.0
	Av.	6.9	9.0	8.7	7.0	8.7	8.6	10.4	9.3
Logical Memory	I	41.1	40.0	30.6	21.4	50.0	55.3	39.1	36.0
	II	24.7	22.2	19.0	10.2	32.7	28.7	17.3	16.8
	III	35.9	32.4	27.8	24.8	45.2	44.3	29.4	28.8
	Av.	33.9	31.5	25.8	18.8	42.6	42.8	28.6	27.2
Ink-Blots	I	6.4	7.3	8.4	4.4	9.9	7.1	8.3	2.8
	II	11.2	10.1	5.4	3.6	12.5	9.3	5.8	5.5
	III	8.4	9.1	7.6	7.2	12.4	7.0	9.4	8.0
	Av.	8.7	8.8	7.1	5.1	11.6	7.8	7.8	5.4

TABLE XXVII (Continued).

	BOYS				GIRLS				
	Whites		Negroes		Whites		Negroes		
	A	B	A	B	A	B	A	B	
Cancellation	"e"	11.6	12.3	16.8	15.5	13.7	15.1	18.8	17.3
	"i"	12.9	16.0	13.1	14.7	17.7	19.7	18.0	13.9
	"o"	17.5	21.3	20.7	20.5	22.1	24.1	22.2	18.7
	"u"	9.3	9.3	7.5	12.3	9.9	11.3	10.6	7.3
	Av.	12.8	14.7	14.5	15.8	15.9	17.6	17.4	14.3
Digit-Symbol	I	21.2	20.6	17.6	11.1	24.0	20.1	16.1	11.1
	II	27.6	24.6	26.0	17.2	29.7	27.3	20.7	17.7
	III	26.8	25.6	25.2	19.6	32.9	30.8	21.9	14.5
	IV	30.8	27.7	30.5	26.5	36.7	36.0	27.4	16.7
	Av.	26.6	24.6	24.8	18.6	30.8	28.6	21.5	15.0
Symbol-Digit	I	21.9	28.3	18.2	9.8	28.2	24.8	15.2	13.2
	II	27.7	23.8	24.3	13.5	33.2	31.5	19.5	17.3
	III	37.9	32.8	27.8	18.6	39.1	37.2	24.6	19.8
	IV	49.4	46.0	33.0	22.2	44.7	46.9	28.4	23.6
	Av.	34.2	32.7	25.8	16.0	36.3	35.1	21.9	18.5
Free Association	I	50.4	48.7	46.0	27.8	50.7	45.6	37.3	35.8
	II	48.7	50.0	42.8	33.8	51.2	49.7	31.5	33.6
	Av.	49.6	49.4	44.4	30.8	51.0	47.7	34.4	34.7
Age in Yrs. & Mo.	13-1	13-10	13-7	15-2	12-10	13-3	12-8	14-5	

TABLE XXVIII.

	BOYS				GIRLS			
	Whites		Negroes		Whites		Negroes	
	A	B	A	B	A	B	A	B
Opposites	23.2	21.2	19.4	11.6	26.2	25.8	20.8	16.0
Ebbinghaus	20.4	14.7	9.4	5.0	22.4	22.5	11.1	8.5
Word-Building	13.8	18.0	17.2	14.0	17.4	17.2	20.8	18.6
Logical Memory	22.6	21.0	17.2	12.5	28.4	28.5	19.1	18.1
Ink-Blots	17.4	17.6	14.2	10.2	23.2	15.6	15.6	10.8
Cancellation	19.2	22.1	21.8	23.7	23.9	26.4	26.1	21.5
Substitution	21.6	24.5	17.9	10.5	26.1	22.5	15.7	12.2
Free Association	24.8	24.7	22.2	15.4	25.5	23.9	17.2	17.4
Average	20.4	20.5	17.4	12.9	24.1	22.8	18.3	15.4
*Average	20.3	19.9	16.3	10.7	24.1	23.8	17.5	14.8

*This average is figured without using the ink-blot, cancellation and free association tests. In recent tests of delinquent white girls, Dr. Pyle finds that high standing in these three tests frequently accompanies low standing in the other tests. This table shows the same thing.

TABLE XXIX.

	% of diff. between group B whites and group A negroes	
	boys	girls
Opposites	9.3	24.0
Ebbinghaus	56.4	102.7
Word-Building	3.5	20.9*
Logical Memory	22.1	49.2
Ink-Blots	23.9	0.0
Cancellation	1.4	1.1
Substitution	36.9	43.3
Free Association	11.4	39.0
Average	20.6	29.8
**Average	25.6	38.1
All Tests Combined	17.8	24.6
** All Tests Combined	22.1	36.0

*A star indicates a difference in favor of the negroes; otherwise the difference is in favor of the whites.

** Ink-blots, cancellation and free association are omitted in figuring this average.

VII.

PHYSICAL NORMS FOR WHITES AND NEGROES

The correlation between mental and physical development is sufficient to make a study of the physical development of negroes an interesting and profitable addition to a study of their mental development. The following pages present a comparison of the physical development of white and negro school children.

Tests of muscular strength (grip) and muscular speed (rate of tapping) were given in Columbia in the Douglass (colored) and Jefferson (white) schools. The number of negroes tested is 349 and the number of whites is 305. Every child in attendance when the tests were given was tested. The tests were given on Wednesday, Thursday and Friday in the negro school (Dec. 3, 4 & 5), and on the following Tuesday, Wednesday and Thursday in the white school. The pupils were very much interested in the tests and worked hard to make a good record.

The results of this study are given in tables XXX

to XXXIII. Norms for white children as given by Smedley have been introduced (tables XXXII and XXXIII) as a means of comparison. Tables XXX and XXXI are represented by graphs 27-30.

The Smedley and the Columbia Norms for Whites.-- (Tables XXXII and XXXIII). Since Smedley's norms are for children in a large city (Chicago), a comparison with the norms for Columbia children may be interesting. In strength of grip boys in Columbia are superior until 12 years and thereafter Chicago boys are superior. Columbia girls are superior until 9 years and thereafter Columbia and Chicago girls are approximately equal. Both boys and girls in Chicago are somewhat more ambidexterous than in Columbia, so far as grip is concerned. In muscular speed both boys and girls in Chicago are uniformly superior, and both boys and girls in Columbia are slightly more ambidexterous.

Strength of Grip.-- (Tables XXX and XXXII; graphs 27 & 28). The curves of development of white boys and negro boys cross frequently and no consistent difference can be made out. The difference in the average of all ages is inconsiderable, (0.5 kg. for the right hand and 0.4 kg. for the left hand -- about 3%); this difference is in favor of the white boys. Until ten years there is little difference between white girls and negro girls. But after ten years the negro girls are stronger than the white girls. In the average of all ages, the negro girls have 1.2 kg more

strength in the right hand --7.2%-- and 2.0 kg. more strength in the left hand --13.8%--. Negro girls are more ambidexterous than white girls.

Muscular Speed.-- (Tables XXXI and XXXIII; graphs 29 and 30). No consistent difference in development in rate of tapping can be distinguished between white boys and negro boys, although there seems to be a slight tendency for white boys to be superior at the later ages. The curves cross frequently and are generally close together. In the average of all ages the difference in favor of the white boys is 3% for the right hand and less than 1% for the left hand in favor of the negroes. The negro boys are slightly more ambidexterous. Until 9 years there is practically no difference between white girls and negro girls; but beginning with ten years, the white girls are consistently superior in tapping rate. In the average of all ages the white girls are 6.6% superior with the right hand and 1.6% superior with the left hand. The negro girls are slightly more ambidexterous than the white girls.

In both muscular strength and muscular speed there is a retardation in development at ten and at twelve years for both boys and girls. It is more marked at ten years. The negroes have a slightly greater average deviation in both muscular strength and muscular speed.

Summary.-- Columbia boys have a stronger grip than Chicago boys but have a lower tapping rate. Muscular strength develops quicker in Columbia girls than in Chicago girls, but the final development is about the same. In muscular speed Chicago girls are superior.

There is not much difference between white boys and negro boys in muscular strength or muscular speed, but negro boys are slightly more ambidexterous, so far as muscular speed is concerned. Until 9 or 10 years there is practically no difference between white girls and negro girls in muscular strength or muscular speed, but after ten years negro girls are stronger and white girls have a higher tapping rate. Negro girls are slightly more ambidexterous in both strength and tapping rate. The negroes are retarded in development at 10 and at 12 years. The negroes are slightly more variable.

TABLE XXX. Strength of Grip.

Right Hand Norms.

	<u>boys (colored)</u>										
Age.	6	7	8	9	10	11	12	13	14	15	Av.
No.	16	10	14	19	12	14	10	14	18	12	
Norm.	8.0	10.7	14.6	16.4	17.2	20.0	20.5	20.9	25.9	34.5	18.9
Av.Dev.	2.1	2.8	2.5	3.1	1.8	3.1	4.0	3.9	6.4	3.2	3.3

	<u>boys (white)</u>										
Age.	6	7	8	9	10	11	12	13	14	15	Av.
No.	22	24	23	27	13	14	22	9	7	5	
Norm.	9.3	12.3	14.7	15.3	18.8	19.6	21.9	23.9	26.9	30.8	19.4
Av. Dev.	1.4	1.9	2.3	1.7	3.0	3.0	2.9	3.3	7.5	3.4	3.0

	<u>girls (colored)</u>										
Age.	6	7	8	9	10	11	12	13	14	15	Av.
No.	19	9	28	18	11	15	15	17	17	11	
Norm.	7.6	11.0	12.4	14.4	12.8	19.4	20.9	25.4	28.1	26.3	17.8
Av.Dev.	1.7	3.1	2.1	2.2	2.4	3.7	3.8	4.3	4.5	5.0	3.3

	<u>girls (white)</u>										
Age.	6	7	8	9	10	11	12	13	14	15	Av.
No.	17	25	25	24	16	17	24	15	13	3	
Norm.	9.4	10.8	11.4	13.5	14.3	15.4	18.5	21.3	24.8	27.0	16.6
Av.Dev.	2.2	1.5	1.7	2.1	2.4	2.8	4.1	6.7	3.0	1.3	2.8

TABLE XXX. (Continued)

Left Hand Norms.

boys (colored)

Age.	6	7	8	9	10	11	12	13	14	15	Av.
No.	16	10	14	19	12	14	10	14	18	12	
Norm.	8.2	10.1	13.2	15.2	15.2	18.4	18.3	19.1	24.2	31.2	17.3
A. D.	2.0	2.7	1.8	2.9	1.9	3.2	2.0	3.7	4.6	3.3	2.9

boys (white)

Age	6	7	8	9	10	11	12	13	14	15	Av.
No.	22	24	23	27	13	14	22	9	7	5	
Norm.	8.1	10.6	12.8	14.0	16.8	17.9	19.7	21.6	26.9	28.6	17.7
A. D.	1.3	1.7	2.0	2.2	2.4	2.8	3.2	5.8	7.8	1.9	3.1

girls (colored)

Age.	6	7	8	9	10	11	12	13 ^c	14	15	Av.
No.	19	9	29	18	11	15	16	17	17	12	
Norm.	7.2	10.0	11.4	13.6	11.6	17.5	19.0	23.3	26.2	24.8	16.5
Av.D.	1.3	2.4	2.0	2.6	2.0	3.5	3.1	5.4	4.0	4.1	3.0

girls (white)

Age.	6	7	8	9	10	11	12	13	14	15	Av.
No.	17	25	25	24	16	17	24	15	13	3	
Norm.	8.1	9.2	9.6	11.5	12.9	13.9	16.5	19.2	22.5	21.7	14.5
A. D.	2.0	1.5	1.7	1.9	2.9	2.5	3.8	4.3	2.8	2.2	2.6

TABLE XXXI. Speed in Tapping.

Right Hand Norms.

boys (colored)

Age.	6	7	8	9	10	11	12	13	14	15	Av.
No.	16	11	14	19	14	14	19	13	16	13	
Norm.	102	113	138	149	145	157	157	162	165	174	146
A. D.	20.4	19.6	15.1	15.4	20.4	15.1	15.1	11.3	15.5	14.1	16.2

boys (white)

Age.	6	7	8	9	10	11	12	13	14	15	Av.
No.	11	20	23	28	14	15	20	10	8	5	
Norm.	119	133	131	141	152	155	167	169	175	168	151.5
A. D.	8.7	10.6	11.8	12.6	10.7	19.4	12.4	11.1	19.9	8.2	12.5

girls (colored)

Age.	6	7	8	9	10	11	12	13	14	15	Av.
No.	19	9	29	18	11	15	16	17	17	12	
Norm.	99	128	132	136	130	143	144	153	150	142	136
A. D.	19.1	17.1	18.3	13.8	15.0	17.7	11.7	12.9	12.0	16.7	15.4

girls (white)

Age.	6	7	8	9	10	11	12	13	14	15	Av.
No.	4	18	25	23	17	17	25	16	14	3	
Norm.	117	124	130	135	144	146	156	161	166	180	146
A. D.	7.8	10.9	14.2	10.3	9.5	13.2	14.1	19.0	12.7	10.7	12.2

TABLE XXXI.(Continued).

Left Hand Norms.

boys (colored)

Age.	6	7	8	9	10	11	12	13	14	15	Av.
No.	16	11	14	19	14	14	9	13	16	13	
Norm.	90	102	125	133	135	142	134	149	159	159	133
A. D.	13.9	14.6	14.8	14.5	18.6	10.9	13.8	17.0	9.5	13.5	14.1

boys (white)

Age.	6	7	8	9	10	11	12	13	14	15	Av.
No.	11	20	23	28	14	15	20	10	8	5	
Norm.	107	111	115	125	131	139	140	152	145	154	132
A. D.	16.6	14.0	10.8	16.4	11.8	12.4	13.5	15.6	14.5	14.4	14.0

girls (colored)

Age.	6	7	8	9	10	11	12	13	14	15	Av.
No.	19	9	29	18	11	15	16	17	17	12	
Norm.	94	118	118	121	123	127	135	144	139	147	127
A. D.	14.9	20.0	10.5	8.8	11.1	14.7	16.8	10.8	9.9	19.0	13.7

girls (white)

Age.	6	7	8	9	10	11	12	13	14	15	Av.
No.	4	18	25	23	17	17	25	16	14	3	
Norm.	107	108	117	122	128	131	139	143	146	153	129
A. D.	13.0	4.4	11.3	10.5	10.6	9.3	11.8	14.6	11.6	3.7	10.1

TABLE XXXII. Speed in Tapping

Age	BOYS					
	Negroes		Whites			
	Right	Left	Jefferson	Smedley	Right	Left
6	102	90	119	107		
7	113	102	133	111		
8	138	125	131	115	147	117
9	149	133	141	125	151	127
10	145	135	152	131	161	132
11	157	142	155	139	169	141
12	157	134	167	140	170	145
13	162	149	169	152	184	156
14	165	159	175	145	184	155
15	174	159	168	154	191	169
	GIRLS					
6	99	94	117	107		
7	128	118	124	108		
8	132	118	130	117	146	117
9	136	121	135	122	149	118
10	130	123	144	128	157	129
11	143	127	146	131	169	139
12	144	135	156	139	169	140
13	153	144	161	143	178	153
14	150	139	166	146	181	157
15	142	147	180	153	181	159

TABLE XXXIII. Strength of Grip

BOYS

Age	Negroes		Whites			
	Right	Left	Jefferson		Smedley	
			Right	Left	Right	Left
6	8.0	8.2	9.3	8.1	9.2	8.5
7	10.7	10.1	12.3	10.6	10.7	10.1
8	14.6	13.2	14.7	12.8	12.4	11.7
9	16.4	15.2	15.3	14.0	14.3	13.5
10	17.2	15.2	18.8	16.8	16.5	15.6
11	20.0	18.4	19.6	17.9	18.9	17.7
12	20.5	18.3	21.9	19.7	21.2	19.7
13	20.9	19.1	23.9	21.6	24.4	22.5
14	25.9	24.2	26.9	26.9	28.4	26.2
15	34.5	31.2	30.8	28.6	33.4	30.9

GIRLS

6	7.6	7.2	9.4	8.1	8.4	7.7
7	11.0	10.0	10.8	9.2	9.9	9.2
8	12.4	11.4	11.4	9.6	11.2	10.5
9	14.4	13.6	13.5	11.5	12.8	12.0
10	12.8	11.6	14.3	12.9	14.7	13.7
11	19.4	17.5	15.4	13.9	16.5	15.5
12	20.9	19.0	18.5	16.5	18.9	17.8
13	25.4	23.3	21.3	19.2	21.8	20.4
14	28.1	26.2	24.8	22.5	24.8	22.9
15	26.3	24.8	27.0	21.7	27.0	24.9

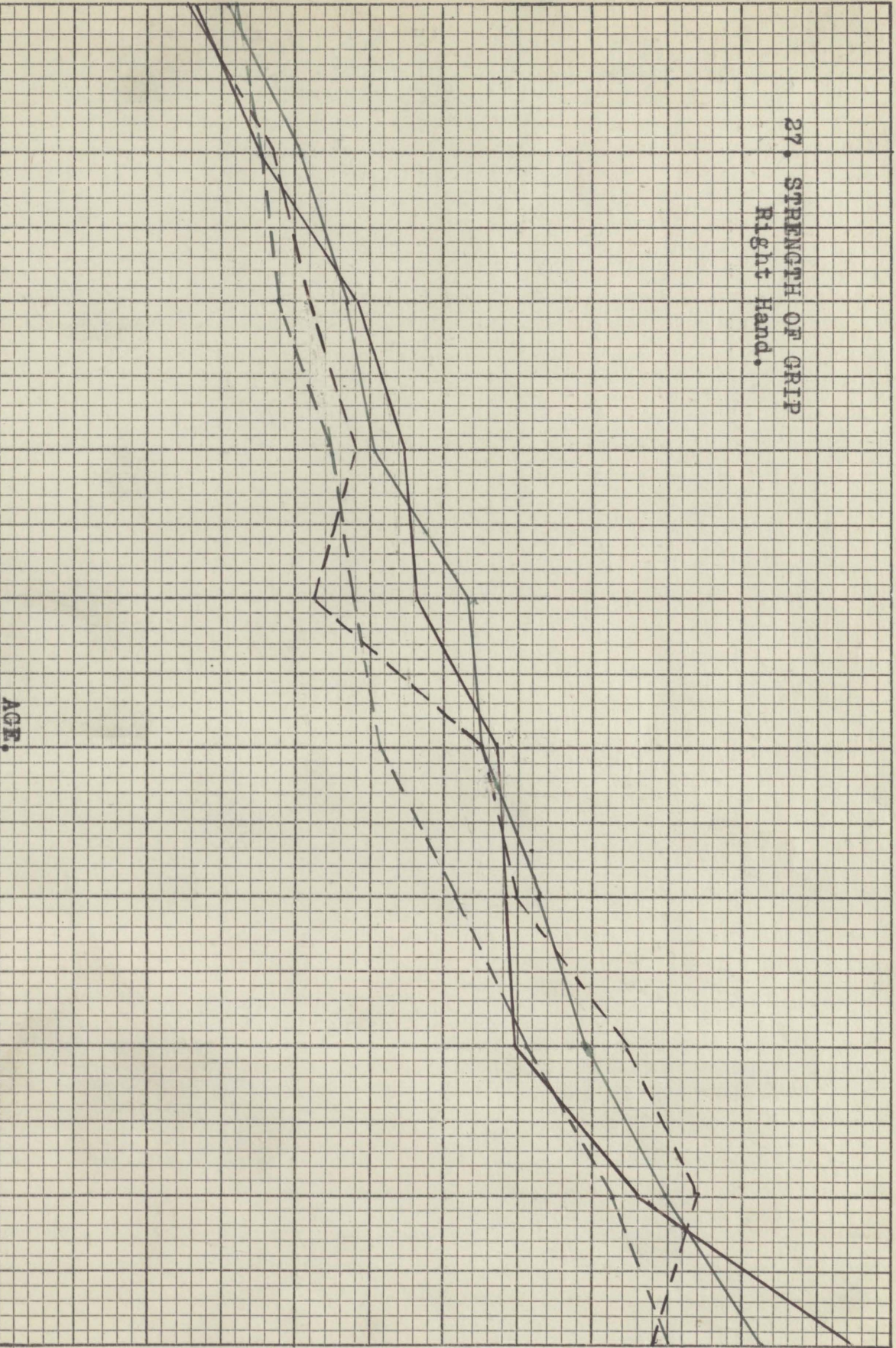
36

24

12

0

27. STRENGTH OF GRIP
Right Hand.



AGE.

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

6 7 8 9 10 11 12 13 14 15

36

28. STRENGTH OF GRIP
Left Hand.

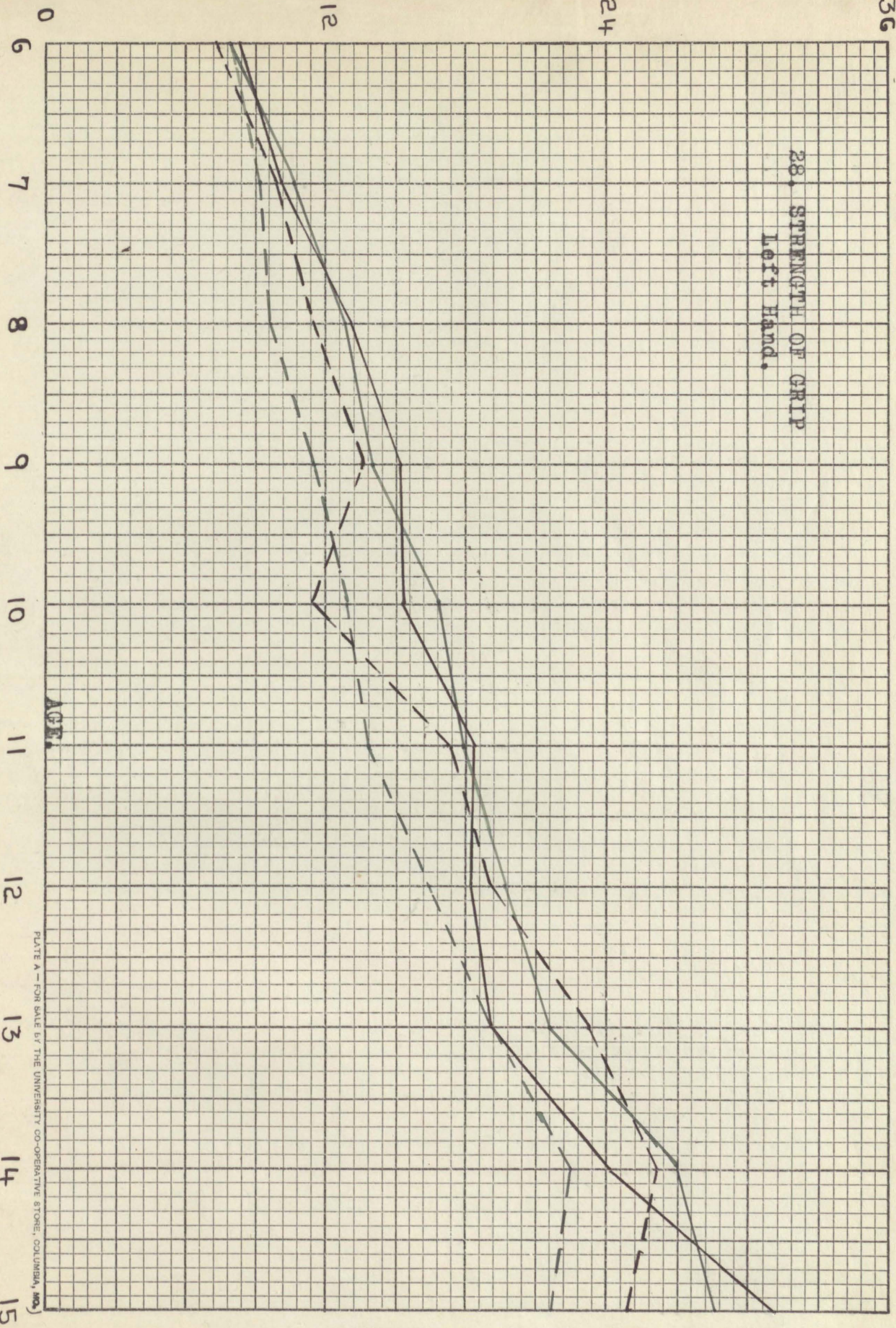


PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

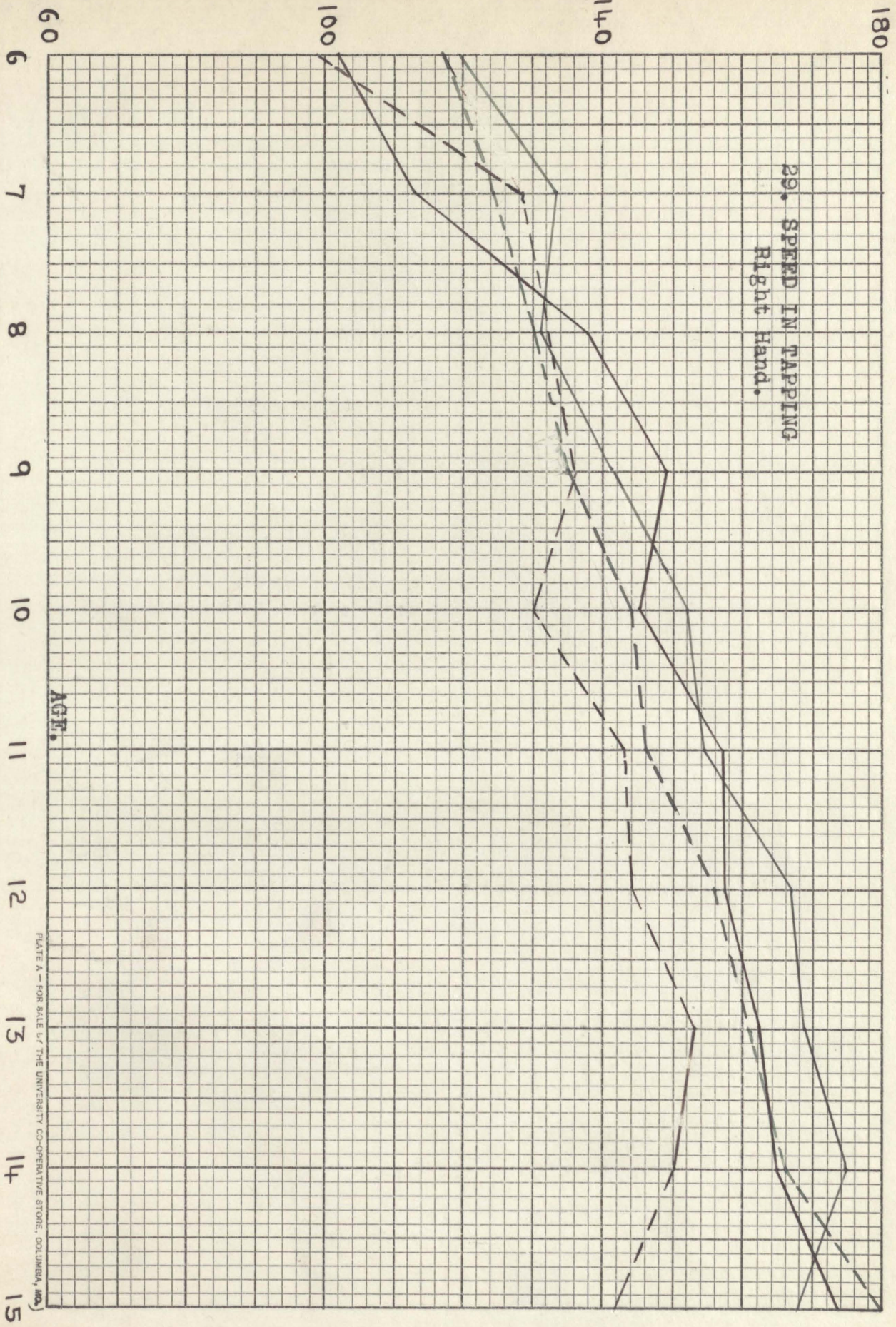


PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

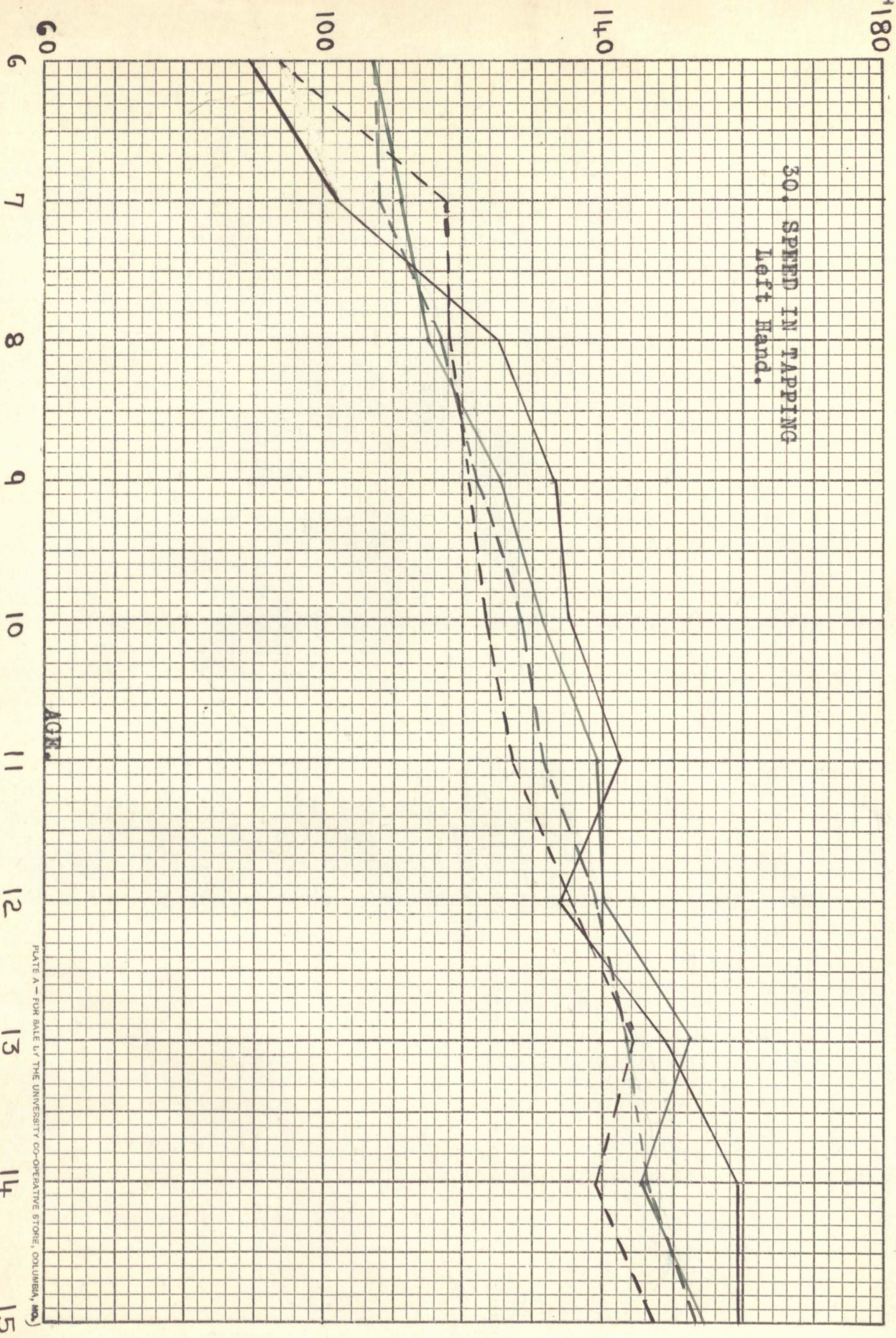


PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

VIII

SUMMARY

The foregoing investigation yields some pretty definite conclusions in regard to the mental characteristics and physical development of negro school children. In general, the average of the negroes has about two thirds or less mental ability than the average of the whites, in so far as the tests used are a measure of mental ability. 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 white girls and in both races the girls are superior. With 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. Whites are more variable than negroes.

and boys are more variable than girls. The negroes in a given school grade are several months older than the whites in a corresponding school grade.

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 less effect on negro girls than on negro boys. 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.

Negro girls have the best permanent retention for ideas in the fourth grade and in the eleventh year, negro boys, in the fourth grade and in the twelfth year. For white girls, the maximum permanent retention is in the sixth grade and in the eleventh year, for white boys, in the sixth grade and in the thirteenth year. In immediate retention for ideas, there is improvement for both whites

and negroes throughout all the school grades and all the ages tested. The whites are considerably superior in both immediate and permanent retention.

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

In tests requiring quickness of learning and forming new associations, quickness in forming old associations, where an association of a 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.

When no restriction is put upon the association processes or upon the imagination, the negroes are nearly as successful as the whites. In a test of quickness of perception and discrimination, and to some extent quickness of reaction, the negroes excel.

At all ages, the physical development, both in muscular strength and in muscular speed, is nearly the same for white boys and negro boys. The same is true for white girls and negro girls until ten years old; there-

after negro girls are stronger -- probably because they do more physical work -- and white girls have a greater muscular speed. The negroes are more variable than the whites, and are also slightly more ambidexterous.

At ten years especially, and to a less extent at twelve years, there seems to be a retardation in both the physical and the mental development of negro school children. The retardation is more marked in the case of children of lower social position than in the case of children of higher social position.