THE PSYCHOLOGY OF THE NEGRO

AN EXPERIMENTAL STUDY

BY

GEORGE OSCAR FERGUSON, A. M.

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AUTHOR'S NOTE

The author wishes to express his thanks

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CHAPTER I

REVIEW OF WORK PREVIOUSLY DONE

Interest in the psychology of the negro has produced a voluminous literature, but the knowledge to be obtained from a reading of it is not commensurately extensive. It may be not unjustly said that until what is practically the present time our information as to the negro's intellectual characteristics has been almost wholly a product of varying individual opinion and speculation. Here and there have appeared works of value, based upon study and experience and presenting carefully drawn conclusions. But for the most part the literature consists of articles which have grown out of limited and untrustworthy observation, and of articles which have attacked the problem from the standpoint of preconceived theories and have reached conclusions a priori from the premises thus held. There has been no settled body of doctrine concerning the vastly important matter of the mental capacity of the negro. One man has held that the negro is the equal of the white in intellect; another has held that a great intellectual gulf separates the two races. And there have been many varieties of views between these two extremes. There have been no facts agreed upon and consequently no reliable generalizations. Yet social practices of far-reaching importance have been based upon these varying views. Some school systems have advocated giving precisely the same training to precisely the same racial minds; other systems have advocated a differentiation of school work to meet the needs of two mentally different races; the advocates of both views have put their beliefs into

practice. Many social and political considerations have of course had their bearing upon these educational matters, but certainly ideas as to the nature of the mind of the negro have not been without influence. And the social and political considerations themselves have had a psychological background.

In the last few years a number of objective studies of the intellect of the negro have been made, and they constitute a definite step toward a scientific answer to the vexed question upon which they bear. It is the purpose of the present chapter to review the experimental work which has been done in this limited field of race psychology and also some of that which has not been experimental. In the following chapters will be set forth the results of an objective study which it is hoped will contribute in some measure toward an answer to the problem.

Non-Experimental Studies

In discussing "human faculty as determined by race," Boas, in an early article ('94), the substance of which is incorporated in a later work ('11), pointed out that while the skull capacity of modern European whites is 1560 cc. and that of European whites of the neolithic period is the same, the skull capacity of the mongaloid race is 1510 cc., that of the negroes of the Pacific ocean is 1460 cc. and that of African negroes is 1405 cc. The negroes, too, were at least as tall as Europeans. Another way of putting it is to say that while 50 per cent. of whites have skull capacities of 1560 cc., only 27 per cent. of negroes equal or exceed this skull capacity. Further, "We find that the face of the negro as compared to the skull is larger than that of the American, whose face is in turn larger than that of the white. The lower portion of the face assumes larger dimensions. The aveolar arch is pushed forward and thus gains an appearance which reminds us of the higher apes. There is no denying that this feature is a most constant character of the black races and that it represents a type slightly nearer the animal than the European type." ('94,p. 311). "Our conclusion is, that there are differences between the physical characters of races which make it probable that there may be differences in faculty. No unquestionable fact, however, has been found yet which would prove beyond a doubt that it will be impossible for certain races to attain a higher civilization." ('94, p. 317).

In a later article ('01, p. 3), Boas argues as follows: "A

number of anatomical facts point to the conclusion that the races of Africa, Australia and Melanasia are to a certain extent inferior to the races of Asia, America and Europe. We find that on the average the size of the brain of the negroid races is less than the size of the brain of other races, and the difference in favor of the Mongaloid and white races is so great that we are justified in assuming a certain correlation between their mental ability and the increased size of their brains. At the same time it must be borne in mind that the variability of the mongaloid and white races on the one hand, and of the negroid races on the other, is so great that only a small number, comparatively speaking, of the individuals belonging to the latter have brains smaller than any brains found among the former; and that, on the other hand, only a few individuals of the mongaloid races have brains so large that they would not occur at all among the black races. That is to say, the bulk of the two groups of races have brains of the same capacities, but individuals with heavy brains are proportionately more frequent among the mongaloid and white races than among the negroid races. Probably this difference in size of the brain is accompanied by differences in structure, although no satisfactory information on this point is available."

Boas then takes up the arguments that primitive races cannot abstract, inhibit impulses or choose according to standards of value. His contention is that primitive man does do these things, but that he does them from his own point of view and to meet his own needs, and not in the same way that civilized man does them. Similarly with the argument that while a savage can perceive well in a sensory way, he cannot interpret phenomena: he does interpret phenomena, but from his own point of view, as is the case with all men. "Our considerations make it probable that the wide differences between the manifestations of the human mind in various stages of culture may be due almost entirely to the form of individual experience, which is determined by the geographical and social environment of the individual. It would seem that, in the different races, the organization of the mind is on the whole alike, and that the varieties of mind found in different races do not exceed, perhaps not even reach, the amount of normal individual variation in each race." ('01, p. 11).

A radically different opinion from that of Boas is held by

Le Bon. ('98). This author holds that the human race may be divided into four groups on the basis of psychological characteristics: (1) Primitive races, such as the Fuegians and the aboriginal Australians, (2) Inferior races, such as the negroes, (3) Average races, such as the Chinese, Japanese, Mongolians and Semitic peoples, (4) Superior races, which are the Indo-Europeans. "No confusion is possible between the four great divisions we have just enumerated. The mental abyss that separates them is evident." ('98, p. 28). The specific differences which separate the primitive and inferior peoples from those which are higher are that the former races have a relative incapacity to reason or associate, to compare and draw conclusions, to attend, observe and reflect, to exercise foresight, to persist in a given line of activity, to hold to a distant rather than a present end. These differences are practically ineradicable, and they determine the achievement of the races. "The various elements of the civilization of a people being only the outward signs of its mental constitution, the expression of certain modes of feeling and thinking peculiar to a people, these elements cannot be transmitted unchanged to peoples of a different mental constitution: all that can be transmitted is the exterior, superficial, and unimportant forms." ('98, p. 233).

Races of men also differ in the relative size of their brains, according to Le Bon. From measurements of the volume of several thousand skulls, he concludes that the differences are real, though not very considerable. And he further draws the interesting conclusion that the more civilized races display a much greater divergence from their average brain size than do the races which are backward. Thus the higher races have more very large and very small brains than primitive people, relatively to their average; the brains of the inferior races conform more nearly to their average type.

Tylor writes ('04, pp. 74-75): "There seems to be in mankind inbred temperament and inbred capacity of mind. .... In measuring the minds of the lower races, a good test is how far their children are able to take a civilized education. The account generally given by European teachers who have had the children of lower races in their schools is that, though they often learn as well as the white children up to about twelve years old, they then fall off, and are left behind by the children of the ruling race. This fits with what anatomy

teaches of the less developed brain in the Australian and African than in the European. It agrees also with what the history of civilization teaches, that up to a certain point savages and barbarians are like what our ancestors were and our peasants still are, but from this common level the superior intellect of the progressive races has raised their nations to heights of culture."

"Moreover, there is this plain difference between low and high races of men, that the dull-minded barbarian has not power of thought enough to come up to the civilized man's best moral standard. .... Much of the wrong-doing of the world comes from want of imagination. .... The lower races of men are so wanting in foresight to resist passion and temptation, that the moral balance of a tribe easily goes wrong, while they are rough and wantonly cruel through want of intelligent sympathy with the sufferings of others, much as children are cruel to animals through not being able to imagine what the creatures feel." ('04, pp. 407-408).

In discussing racial brain differences Tylor says: "Professor Flower gives as a mean estimate of the contents of skulls, Australian, seventy-nine; African, eighty-five; European, ninety-one. Eminent anatomists also think that the brain of the European is somewhat more complex in its convolutions than the brain of a Negro or Hottentot. Thus, though these observations are far from perfect, they show a connection between a more full and intricate system of brain-cells and fibres, and a higher intellectual power, in the races which have risen in the scale of civilization.

"It is often possible to tell by inspection of a skull what race it belongs to. The narrow cranium of the negro would not be mistaken for the broad cranium of the Samoyed. .... Taking the diameter from back to front as 100, the cross-diameter gives the so-called index of breadth, which is about 70 in the Negro, 80 in the European, and 85 in the Samoyed. ....The Australian and African are *prognathous* or "forward jawed,' while the European is *orthognathous*, or 'upright-jawed.' At the same time the Australian and African have more retreating foreheads than the European, to the disadvantage of the frontal lobes of their brain as compared with ours." ('04, pp. 60-62).

G. Stanley Hall's view of the relative mental make-up of the negro and the white may be set forth in the following

quotations: "No two races in history, taken as a whole, differ so much in their traits, both physical and psychic, as the Caucasian and the African. The color of the skin and the crookedness of the hair are only the outward signs of many far deeper differences, including cranial and thoracic capacity, proportions of body, nervous system, glands and secretions, vita sexualis, food, temperament, disposition, character, longevity, instincts, customs, emotional traits and diseases. All these differences, as they are coming to be better understood, are seen to be so great as to qualify if not imperil every inference from one race to another, whether theoretical or practical, so that what is true and good for one is often false and bad for the other." ('05, p. 358).

"Another racial trait of the negro is found in the sphere of sexual development. Special studies show that the negro child up to about twelve is quite as bright as the white child; but when this instinct develops it is earlier, more sudden, and far more likely permanently to retard mental and moral growth than in the white who shoots ahead. Thus the virtues and defects of the negro through life remain largely those of puberty." ('05, p. 362).

This last contention of Hall's, that the negro's development comes to what is at least a partial stand-still at puberty, occurs in the writings of others who have dealt with the subject. Tylor has already been quoted on this point. The idea is that after puberty the individual's mental life broadens and takes on new aspects: abstraction, a tendency to penetrate into the meanings of things, the power to perceive relations, and the ability to appreciate logical, aesthetic and moral situations. Before adolescence a child's activities are mainly the so-called lower mental processes, such as perception, memory and the motor responses. The negro, being the lower type, fails to attain the post-pubertal traits to the degree that the white child attains them, and therefore remains permanently on a lower level. But on this level, and in the traits which constitute it, he is fully the equal of the white child. Thus, while he cannot reach the finer elements of mental attainment, the negro is yet the equal or the superior of the white in sense capacity, rote memory, objective attentiveness, motor control, and qualities of a similar nature. Another statement from Hall bears upon this: "Mental development after puberty is much more uncertain than before. The first twelve years

of life represent larger and more fundamental qualities. Adolescence adds a new story, less stable, very liable to arrest at any stage. .... This makes nearly the whole post-pubic period critical, peculiarly exposed to dangers from without, because it is so plastic and susceptible, and still more so because the growth forces that push youth on toward maturity are so liable to show signs of exhaustion before their work is finished. Hence it follows that length of the growing period is one of the most important factors in development. Lower races often stop short when sexual maturity is achieved." ('03, p. 811.) In this connection, Libby ('08), reporting the result of an experiment in which he had white high school and grammar grade pupils write compositions descriptive of a certain sentimental picture, states that the feeling, meaning and sentiment of the picture were grasped only by pupils older than fourteen years. And Ellison, as reported by Bagley ('09), says that children below the age of thirteen do not have abstract ideas such as would enable them to give good definitions.

Odum ('10, pp. 36-37) agrees with the general idea represented in the last two quotations from Hall: "Negro children are easily interested, attentive, eager and alert. For the most part they are bright and learn easily. In many cases they appear brighter than white children of the same age. They learn from memory easily and retain little things for some length of time. .... They learn readily to do things by imitation and become comparatively skilful in a short time. .... However, there are many negro children who have an almost total lack of mental perception, whose minds are so dense that they can scarcely learn anything. The percentage of such cases increases with age." This author makes many statements, without, however, giving evidence to substantiate them, to the effect that the negro child, as shown by experiments, is brightest—i. e., most able to do and learn simple things—at thirteen years of age, and that he is of greatest ability—i. e., most able to "grasp and hold that which confronts the mind"—at eight or nine years of age; that the negro's mental development practically ceases at the age of about thirteen; that there is an almost entire absence of sexual morality among the great body of negroes, children and adults, due to the predominance of their "physical impulses and pleasure-pain feelings;" that the more primal emotions, fear,

anger, jealousy, self-exaltation, self-depreciation, sorrow, etc., are especially active in the negro; that dynamically the negro is volatile, easily responsive to stimuli, guided by present impulses, unrestrained—in short, that his life is one of temporary emotion rather than of permanent sentiment.

A recent article by Bardin ('13) argues that there must be a connection between racial mental differences and the physical differences between races, since both were evolved together. And since it is becoming increasingly evident that the negro and the white differ mentally, we must therefore suppose that there are corresponding neural differences, as marked, in their way, as are the external physical signs of race, such as skin, hair texture and facial angle. From this position the writer contends that in attempting to modify the negro's mind while yet keeping him a physical negro we are undertaking the impossible. "It follows, therefore, that present ideals in regard to the solution of our Negro problem .... are biologically fallacious, and impossible of attainment. We can never make the Negro like the white man mentally. We can never have a bi-racial state based upon an identity of ideas and political philosophies in both races." ('13, p. 374). This contention is almost identical with that quoted above from Le Bon.

One of the most interesting estimates of the intelligence of the negro was made by Francis Galton ('92). In a study of the relative capacity of the white and negro races he divided each race into sixteen defined grades of ability, eight above and eight below its racial average, and considered that the intervals separating the grades were equal throughout. After a survey of eminent men of each race he came to the conclusion that the ablest negro ranked two grades below the ablest white. Then, by an application of the "law of deviation from an average," he held that negroes as a race have two degrees of ability less than Europeans. Another way of expressing it is to say that the difference between negroes and whites in intellectual capacity is about one-eighth of the difference between the most eminent man and the lowest idiot. Galton then goes on to point out that the experiences of travelers among native tribes and the prevalence among negroes of feeble intellects furnish confirmation of his estimate.

After a survey of the available evidence of racial mental differences, Thorndike ('10, pp. 67-68) sums up as follows:

"From all these facts each student may make his own estimate of the original mental differences of races, and learn at least the need of more actual measurements of race differences and of intelligence in interpreting them. My own estimate is that greater differences will be found in the case of the so-called 'higher' traits, such as the capacity to associate and to analyze, thinking with parts or elements, and originality, than in the case of the sensory and sensori-motor traits, but that there will still be very great overlapping. Calling the difference between the original capacity of the lowest congenital idiot and that of the average modern European 100, I should expect the average deviation of one pure race from another in original capacity to be below 10 and above 1, and the difference between the central tendencies of the most and the least gifted races to be below 50 and above 10. I should consider 3 and 25 as reasonable guesses for the two differences."

Experimental Studies

From these studies and opinions of a non-experimental nature we may turn to those which are based upon quantitative investigation. The first attempt at a quantitative study of the negro with which the writer is familiar is that by Bache, published in 1895. This investigator starts with the assumption that the more inferior the race, the quicker the reaction time. "That the negro is, in the truest sense, a race inferior to that of the white can be proved by many facts, and among them by the quickness of his automatic movements as compared with those of the white." ('95, p. 481). The results of the tests on twelve whites, eleven Indians and ten negroes showed the whites to be the slowest and the Indians to be the quickest with auditory, visual and electrical stimulation. The speed of the negroes was roughly midway between that of the Indians and the whites. The writer explains that the reason the negroes were slower than the Indians was that they were of mixed white and negro blood and had inherited the effects of slavery, while the Indians' mode of life compelled them to rely upon quick movement. This explanation is offered to strengthen the writer's contention that the Indian is a higher race than the negro, and consequently should have a slower reaction time. The study is hardly conclusive; the numbers tested were too small, and the variabilities of the average re-

action times are not given. Certainly the initial assumption was not proved by the tests.

Smith made some association and memory tests upon a "typical" negro boy sixteen years of age. The nature of the tests is not given, nor are the results set forth. The author's general conclusion, plainly unwarranted on the basis of the work done, is as follows: "The negro child is psychologically different from the white child. In automatic power he is superior, but in the power of abstraction, of judgment and analysis he is decidedly inferior. This fact must be recognized in the school training." ('96, p. 60).

Stetson ('97) gave a memory test to five hundred white and five hundred colored children in the fourth and fifth grades of the schools of Washington, D. C. The average age of the white children was 11 years; the average age of the colored children was 12.57 years. The test was somewhat crude. It consisted in reading to the children four verses of four lines each, explanations of the verses being given and the class repeating them twice in concert. Later the verses were reproduced orally to the experimenter by each child, and the reproductions were scored as being 100, 75, 50, or 25 per cent. correct. The results showed that the negroes were superior to the whites in memory of three of the verses, while the whites were superior in memory of one. The average score for the four verses was: Whites, 58.09; Colored, 58.27. In other words, there was practically no difference in memory capacity between the two races. But in school studies the average rank of the white children was 74.32, while the average rank of the colored was 64.73. This superiority of the whites in school work led the author to conclude that the negroes were deficient in reasoning power, since the test showed that they were not deficient in memory. This conclusion, of course, is subject to criticism on the ground that a number of other factors may have been responsible for the academic inferiority of the colored children.

McDonald studied 91 colored children by means of physical and mental tests. His conclusions are summarized as follows: "Among the boys and girls the per cent. of long heads is much greater after puberty than before. This is also true of white boys but not of white girls. The colored boys are more sensitive to heat and locality after puberty than before. The reverse is true with the white boys, but the colored girls,

like the white girls, are less sensitive after puberty. .... Colored children are much more sensitive to heat than white children. .... Colored girls have larger circumference of head at all ages than white girls. .... White children, relatively to their height, are longer bodied than colored children. The percentage of long-headedness among colored boys is more than double that of white boys." ('99, pp. 1141-1143). The writer states that from a table based on teachers' estimates of the brightness, dullness and mediocrity of colored children, (number indefinite), it appears that the percentage of bright children, both boys and girls, increases rapidly between the ages of seven and eight, and continues to increase slightly until the age of thirteen. From thirteen to sixteen the percentage of bright pupils decreases rapidly. It would seem that the results of this work should be verified by other investigators before being accepted. The chances for error in the mental tests used are considerable, and the composition of the various groups tested is not quite clear.

The foregoing experimental studies, all of which were made prior to 1900, emphasize the need of a careful technique in the quantitative handling of this question. The opportunities for error are very great, and in inexperienced hands psychological tests and statistical methods may lead to results that are worse than useless. A field as little worked and as inviting as this of the comparative psychology of the white and the negro is likely to attract, and has attracted, investigators who lack the necessary training—just as it has attracted theorists who were not adequately grounded in the essentials of their work. One would not be far wrong in saying that all of the experimental work done on the psychology of the negro prior to 1900 is of practically negative value.

In summarizing the status of scientific race psychology in 1910, Woodworth writes as follows:* "One thing the psychologist can assert with no fear of error. Starting from the various mental processes which are recognized in his textbooks, he can assert that each of these processes is within the capabilities of every group of mankind. .... Statements to the contrary, denying to the savage powers of reasoning,

*The work reviewed by Woodworth was that by himself, Bruner, Ranke, Rivers, McDougall and Myers. This work had to do almost exclusively with the sense capacities of primitive groups, and the summary by Woodworth makes it unnecessary to give a further account of it here.

or abstraction, or inhibition, or foresight, can be dismissed at once. If the savage differs in these respects from the civilized man, the difference is one of degree, and consistent with overlapping of savage and civilized individuals." ('10, pp. 3-4).

Woodworth then goes on to discuss the evidence in regard to the several sense capacities. Natives of Brazil, the steppe-dwelling Kalmucks, Papuans, Indians, Filipinos and other races have been tested for visual acuity, and found, on the whole, to have vision superior to that of the average white, but the overlapping between the whites and these races is great. "We may perhaps conclude that eyesight is a function which varies somewhat in efficiency with difference of race, though with much overlapping. .... It did not seem possible, however, to assert anything like a correspondence between eyesight and the degree of primitiveness or backwardness of a people. .... Even if small differences do exist, it is fairly certain that the wonderful feats of distant vision ascribed to savages are due to practice in interpreting slight indications of familiar objects." ('10, pp. 5-6). In the case of hearing, the tests indicate that whites are superior to primitive peoples. This superiority may be due in part to the fact that the ears of civilized man are better protected from injuries than are those of savages, and that the meatus is kept cleaner by the white man. Then, too, the white is more familiar with the sorts of sound used in the tests than is the savage, and on this account may detect them more readily. The few tests that have been made for keenness of smell show no higher acuity among negroes and Papuans than among Europeans. In ability to discriminate two points on the skin the evidence is conflicting; on the whole there is probably no appreciable superiority in favor of any of the races tested. The experiments which have been made to determine the acuity of the pain sense are largely vitiated by the fact that savages and civilized men have different standards as to what constitutes pain. "On the whole," says Woodworth, "the keenness of the senses seems to be about on a par in the various races of mankind." ('10, p. 7). In reaction time, speed of tapping and susceptibility to illusions, the tests seem to indicate that the different races are about equal.

In discussing tests for intelligence as opposed to sensory and motor capacity, the writer points out that the form-board is the only test of intelligence which has been used with differ-

ent races. "This test was tried on representatives of several races, and considerable differences appeared. As between whites, Indians, Eskimos, Ainus, Filipinos and Singhalese, the average differences were small, and much overlapping occurred. As between these groups, however, and the Igorot and Negrito from the Philippines and a few reputed Pygmies from the Congo, the average differences were great and the overlapping was small. Another rather similar test for intelligence which was tried on some of these groups, gave them the same relative rank. The results of the test agreed closely with the general impression left on the minds of the experimenters by considerable association with the people tested. And, finally, the relative size of the cranium, as indicated, roughly, by the product of its three external dimensions, agreed closely in these groups with their appearance in intelligence and with their standing in the form test. If the results could be taken at their face value, they would indicate differences of intelligence between races, giving such groups as the Pygmy and Negrito a low station as compared with most of mankind." ('10, pp. 10-11).

One of the important investigations of the mental capacity of the negro is that by Mayo ('13), who studied the school marks of 150 white and 150 colored high school pupils in the schools of New York City. His results can best be given in his own words: "To summarize, the following are the leading results deduced from the data considered:

"The median age of white pupils at the time of entering high school in the city of New York is 14 years 6 months; of colored pupils 15 years 1 month—a difference of 7 months. The average deviation for whites is 9 months; for colored, 15 months. Twenty-seven per cent. of the whites are as old as the median age of the colored or older.

"Colored pupils remain in school a greater length of time than do the whites. For the cases studied, the average time spent in high school for white pupils was 3.8 terms; for colored, 4.5 terms. About 28 per cent. of the whites attain the average time of attendance for the colored.

"Considering the entire scholastic record, the median mark of the 150 white pupils is 66; of the 150 colored pupils 62; a difference of 4 per cent. The average deviation of white pupils is 7; of the colored 6.5. Twenty-nine per cent. of the colored pupils reach or surpass the median mark of whites.

"The white pupils have a higher average standing in all subjects. .... The percentage of colored pupils reaching the median mark of the whites in the several subjects is as follows: Modern languages, 33; mathematics, 32; history, 31; the sciences, 29; Latin and Greek, 27; English, 24; the commercial subjects, 22; and all subjects together, 29.

"The total number of subjects pursued by the white group was 2433; the total number of subjects passed on the first trial was 1855; the percentage of subjects passed being 76. The total number of subjects pursued by the colored group was 2382; the total number of subjects passed on first trial was 1379, the percentage of subjects passed being 58. Interpreting these figures as a measure of relative scholastic efficiency, the efficiency of colored subjects is 76 per cent. of that of the whites; that is, the colored pupils are about ¾ as efficient as the whites in the pursuit of high school studies." ('13, pp. 44-45).

These results are significant as they stand, and they become still more so when it is considered that the colored pupils studied were, as Mayo points out, a more closely selected group than the whites. How much more closely the negroes were selected than the whites is not known. It must also be borne in mind that the colored group was not made up of persons of pure negro blood. The percentage of mulattoes is not stated, but it is probably high. And the presence of mulattoes considerably raises the standard of negro attainment, as will be shown in a later chapter. Another consideration tending to emphasize the racial differences found by Mayo is that the colored pupils with whom he dealt were for the most part either emigrants from the South or the children of emigrants, and that they therefore probably inherited the ability and energy which leads the ambitious negro to seek to better his condition in the North. On the other hand, it is difficult to estimate the white group represented in this study. It contained English, Germans, Irish, Italians and Jews in indefinite numbers, but a random selection of whites was carefully observed, and the group is probably typical of the white high school population of New York.

Phillips ('12), in a study of retardation in the public elementary schools of Philadelphia, found percentages of retardation as follows in schools attended entirely by colored pupils: 68.2, 60.6, 67.3, 70.9, 66.3, 72.8, 58.2, 59.3. The per-

centages of retardation in the respective school districts in which these eight schools were situated were as follows: 41.8, 44.5, 45.1, 45.1, 37.2, 36.0, 36.0, 33.3. In other words, the percentage of retardation in the colored schools ranged from 72.8 to 58.2, while the percentage of retardation in the districts which contained these schools ranged from 45.1 to 33.3. The average percentage of retardation for the city as a whole was 40.3. Each of the colored schools had a greater percentage of retardation than any of the white schools, even those composed almost entirely of foreigners, and in those schools attended by both white and colored pupils the percentage of retardation on the whole varied directly with the percentage of colored pupils in attendance. The writer concludes by saying: "It is a question whether the course of study is suited to the negroes, as the educational results are so far behind those in the other schools, and it is very doubtful whether even a liberal interpretation of the course of study would meet the educational necessities of this group." ('12, p. 90).

In a later article ('14), Phillips reports the results of an attempt to ascertain the causes of this retardation by means of an application of the Binet tests to white and colored children of the same chronological age and home conditions, the tests being made in all cases by the same individual. "Forty colored girls and 46 colored boys, totaling 86, were tested by the Binet scale; 75 white girls and 62 white boys, totaling 137, were likewise tested. The home of each of these 223 pupils was visited and the home conditions noted, as Excellent, Good, Fair and Poor. In so rating the home, the material (money), intellectual, and moral elements were noted in making up the rating. In the following comparison only the white children of excellent home conditions are compared with the colored children of excellent home conditions; the white of good home conditions with the colored of good home conditions, and so on. This method of procedure, of course, necessitated the elimination of quite a number of those tested, so that our final comparison was made on 29 each of colored boys and girls respectively." ('14, p. 191).

The results are stated as follows: ".... we see that of those tested 37.9 per cent. of the white boys were retarded, while 65.5 per cent. of the colored boys were retarded; that 46.4 per cent. of the white girls were retarded and 71.4 per cent. of the colored girls were retarded; and that 42.1 per cent.

of the white boys and girls combined were retarded, and that 68.4 per cent. of the colored boys and girls combined were retarded. This makes the colored boys retarded 17.4 (27.6)* per cent. more than the white boys; the colored girls retarded 25 per cent. more than the white girls; while the total rate of retardation of both groups is 26.3 per cent.

".... we find that 31 per cent. of the colored girls (boys)† are accelerated while 62 per cent. of the white girls (boys)† are accelerated; that 28.5 of the colored boys (girls)† are accelerated and 53.5 per cent. of the white boys (girls);† and that 29.8 per cent. of colored boys and girls are accelerated and 57.8 per cent. of both white girls and boys. This makes a difference in the acceleration between the two races of 31 per cent. in favor of the white boys, 25 per cent. in favor of the white girls, 28 per cent. in favor of the white pupils with boys and girls combined.

"This would seem to corroborate the findings in the case of pedagogic retardation. We see in every group, considering the retardation from pedagogical or psychological viewpoints, that the colored pupils are retarded from 20 to 30 per cent. more than the white pupils, and that the white pupils are always greatly above them in acceleration." ('14, pp. 191-195).

It is interesting to note that the total number of pupils tested, including those eliminated on account of not having comparable home conditions, gives practically the same comparative result as was obtained from the picked group. The percentage of retarded pupils in the total colored group was 54.6; the percentage of retarded pupils in the total white group was 24. The percentage of accelerated pupils in the total colored group was 6.9; in the total white group it was 20.4.

The author concludes as follows: "In applying the Binet tests to colored children the following facts of interest were fortunately thrust upon our attention. In the first place the colored pupils as a class were good in the memory tests and poor in those requiring judgment. They were generally

*This figure should evidently be 27.6 instead of 17.4. It represents the difference between the percentages of retardation of white and colored boys, which are 65.5 and 37.9, as quoted, and also as given in the tables which accompany the article.

†Phillips seems to have made an error here. In order to make the figures agree with the tables from which they are taken, and also with the differences in acceleration as quoted, the words "boys" and "girls" should be interchanged as indicated by the brackets.

slower in response. The testing of the colored children took a much longer time than the white. Their reaction time was greater, they were less animated. It is significant to note that the younger white children were more advanced than the colored children of the same age. This is in contradiction to the generally accepted fact that colored children are quicker when young.

"If the Binet tests are at all a gauge of mentality it must follow that there is a difference in mentality between the colored and the white children, and this raises the question: Should the two groups be instructed under the same curriculum?" ('14, p. 196).

The first application of the Binet tests to whites and negroes was made by Strong, and was reported by her ('13) and by Morse ('14). Two hundred and twenty-five white and 125 colored children were tested in the schools of Columbia, S. C. The percentage of children testing more than one year below age was 10.2 for the white and 29.4 for the colored. The percentage testing more than one year above age was 5.3 for the white and 0.8 for the colored. The largest group of white children was that testing at age; the largest group of colored children was that testing one year below age.

An attempt was made to divide the white children into "city children" and "mill children," in order to arrive at a conclusion as to how far inferiority in the tests was due to poor environment. The environment of the mill children is of considerably lower grade than that of the city children, and is not markedly different from that of the negroes. When this division was made the results showed that 6 per cent. of the city children were more than one year below age while 18 per cent. of the mill children were more than one year backward. On the face of it, then, this would indicate that the comparatively poor showing made by the negroes was in large measure due to poor home conditions. But in fact it leaves the question still open. For while mill children may have adverse environment, they may also have poor native capacity due to their poor heredity. Their unfavorable surroundings may be the product of a lack of inheritable capacity in their parents.

This criticism applies to all attempts to determine the influence of environment upon people whose heredity is not known to be alike. And yet such efforts are made with

seemingly increasing frequency. It should be remembered that poor achievement, in psychological tests or in any other activity, may be accompanied by inferior social condition and yet not be the product of that condition. The achievement and the condition may both result from one and same cause, lack of native capacity. In such matters as are sought by all, such as the ordinary facilities of life and intercourse according to the prevailing standards, it is very probable that native capacity determines the relative attainment of men within any large and homogeneous unit of mankind. And it is very probable that the presence of poor home environment among any considerable group of our population is due to a comparative absence of ability in that group as a whole. This absence is inherited by the offspring of that group. Errors due to a neglect of this consideration need to be especially guarded against in psychological investigations which aim to study environmental influence.

Strong divided the negroes tested by her into classes on the basis of degree of skin pigmentation. She says: "The children were divided into three groups according to color. This classification was not a scientific one, and the statement of results may be entirely worthless. There were 34 dark children, 35 medium in color, and 43 light colored in this classification, 122 in all. Of the dark colored, 14.4 per cent. tested below age, 76.7 per cent. tested at age, and 8.8 above age. Of the next group, somewhat lighter in color, 31.1 per cent. tested below age, 62.2 at age, and 6.6 per cent. above age. Of the lightest group 44.2 tested below age, 44.2 at age, and 11.6 above age. The darkest children are more nearly normal, the lightest show the greatest variation, both above and below normal." ('13, p. 506).

Morse comments upon the tests as follows: "In general it may be said that the colored children excel in rote memory, e.g., in counting, repeating digits (but not one was able to repeat 26 syllables), naming words, making rhymes and in time orientation. They are inferior to the whites, however, in aesthetic judgment, observation, reasoning, motor control, logical memory, use of words, resistance to suggestion and in orientation or adjustment to the institutions and complexities of civilized society." ('14, p. 78). With reference to pedagogical retardation, he writes: ".... 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." ('14, p. 78).

In reviewing this study, Bruner says: "The tables show another interesting point on which the author makes no comment. At the ages of six, seven and eight just about twice as many negro children as white rate below age, whereas for the ages of ten, eleven and twelve the superiority of the whites over the negroes is but slight. This suggests that the rate of maturing may be more rapid with the negro children, so as to make them older, mentally, at the age of twelve than white children of the same age." ('14, p. 385).

A study of the learning capacity of whites and negroes was made by Baldwin ('13). A somewhat elaborate substitution test was used five minutes a day for sixteen days with 37 white and 30 colored delinquent adolescent girls. Their ages ranged from 13 to 21 years. "Fourteen other negro girls were too feeble mentally to perform the tests after the initial instructions although they worked assiduously for the period of three weeks, and three white girls failed to do 50 per cent. of the work correctly." ('13, p. 317). From the summary of the results: "In this type of learning it is found that: 1. 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. Practically all the superior negroes in the school were included in the test.

"2. The learning capacity of delinquent negro girls differs quantitatively and qualitatively from that of the white girls, and the educational corollary follows that different methods of instruction and training are required for the negro girls than for the white girls." ('13, pp. 331-332).

On the whole the inferiority of the negroes was about the same in both absolute amount of work done and in learning capacity. The negroes as compared with the whites were slow to warm up, quick to lose interest, difficult to stimulate except through flattery, irregular, moody, vacillating in attention, inaccurate, envious of each other's progress, given to

mumbling, grumbling, humming, saying funny things while at work.

A study of this kind is difficult to evaluate in its bearing upon normal subjects. The girls were all committed to an institution as delinquents, and their mental ability was probably considerably below the average. Whether both races were equally below the average is not known. The fact that fourteen negro girls could not work the test at all, while only three white girls failed to complete as much as 50 per cent. of the work, would indicate that the negroes were farther below the average racial ability than were the whites; but this is not conclusive. That the test failed to enlist the interest of the colored girls indicates that their true learning ability was not measured. But this, too, is of doubtful significance, since the very fact that the negroes were not interested as were the whites possibly points to a deficiency in the colored group. On the whole, it seems safe to say that the test is probably indicative of a true racial difference, though the amount of such difference is left uncertain.

Since the tests to be described in the following chapters were made, there has appeared a preliminary report by Pyle ('15) of an extensive investigation of the relative mental capacity of whites and negroes. This investigator tested 408 colored pupils, from eight to sixteen years of age, inclusive, in the public schools of Columbia, Mexico and Moberly, three towns in Missouri, using a number of standard tests, and compared the results thus obtained with the norms which he had previously ascertained for white children in the same tests. As the report which has so far appeared is only preliminary, it is impossible to go into detail concerning the work done, but the author's words may be quoted to indicate the main outlines of this valuable research:

"The following are the conclusions to which the work so far points. .... In general the marks indicating the mental ability of the negro are about two-thirds those of the whites. The negro girls approach the white girls in ability a little more closely than the negro boys approach white boys. Negro boys and girls are farther apart in ability than are white boys and girls. In both races the girls are superior, if the average performance is taken as the basis of comparison. With increasing age, there is a tendency for the difference between whites and negroes to become less. This ten-

dency is more marked with boys than with girls. About one-fifth of the negroes are equal or superior to the average of the whites, while three-fourths of the whites are equal or superior to the average of the negroes. In the same school grade, the negroes are several months older than the whites. Negro girls have the best permanent memory for ideas in the eleventh year. The same is true of white girls. Negro boys have the best permanent memory for ideas in the twelfth year and white boys in the thirteenth year. In rote memory the negroes have a much better memory for concrete than for abstract words, but are greatly inferior to whites in both.

"If, for purpose of comparison, the negroes are separated into two groups according to social position, it is found that the negro boys of better social class have about four-fifths of the ability of white boys. The negro girls of better social position have an ability which is about three-fourths that of white girls. Difference in social position has less effect on negro girls than on negro boys. The difference in social position has most effect on tests requiring quickness in learning, quickness in controlled association, in immediate and permanent logical memory and in constructive imagination as measured by the Ebbinghaus test. With negro children of the better social class the tendency to approach the norm of white children is more marked. In the substitution, controlled association and Ebbinghaus tests, the negroes are less than half as good as whites. In free association and the ink-blot tests they are nearly as good. In quickness of perception and discrimination and in reaction, the negroes equal or excel the whites.

"At all ages, the physical development both in muscular strength and muscular speed is nearly the same for negro boys and white boys. The same is true for negro girls and white girls until the age of ten. After ten, negro girls are stronger than white girls, but white girls are faster. The negro girls are stronger probably because they do more muscular work than white girls do. Muscular speed seems to be little affected by conditions of life while muscular strength is much affected by them.

"Perhaps the most important question that arises in connection with the results of these mental tests is this: How far is ability to pass them dependent upon environmental conditions? Our tests show certain specific differences between

negroes and whites. What these differences would have been had the negroes been subject to the same environmental influences as had the whites, it is difficult to say. The results obtained by separating the negroes into two social groups would lead one to think that the conditions of life under which the negroes live might account for the lower mentality of the negroes. On the other hand, it may be that the negroes living under the better social conditions are of better stock. They may have more white blood in them." ('15, pp. 357-360).

Neurological Studies

It is assumed everywhere as a matter of course that mental differences imply neural differences. If there are mental differences between two races, then we may expect to find differences in the nature of the brain structure of the two races, and vice versa. The comment is frequently made that apparent differences in the size or shape of the brains of given racial groups must indicate corresponding psychical divergencies. Such comment has been quoted in some of the foregoing abstracts, notably in those from Boas, Le Bon and Tylor. If there is a racial, or individual, inheritance of mind there must be an inheritance of appropriate anatomy and physiology.

A few recent investigators have attacked this problem of racial neural differences. In Baltimore, Bean studied the brains of 103 negroes and 49 Caucasians. He concludes that, "Not only is the anterior association center smaller in the Negro than in the Caucasian, but the whole frontal lobe of the Negro is smaller." ('06, p. 374). The negro stands in an intermediate position between man and ourang in the relative size of his frontal to his parietal and occipital lobes.

Bean then goes on to point out that this conclusion is in accord with well-known traits of the negro. He states, citing Flechsig as authority, that the anterior association center, which is comparatively small in the negro, is intimately connected with ideas regarding personality; the relations of self, subjectively and objectively; the capacity for ethical and aesthetic judgment; self-control, especially in such matters as sexual excitement, anger or vexation; will power. The posterior association center, on the other hand, which is comparatively large in the negro, is more intimately connected

with the special senses; it is objective and concrete, while the anterior center is subjective and abstract in the mental processes which its operation accompanies. "The relative differences found in the association centers of the two races is suggestive in relation to the known characteristics of the two, in view of Flechsig's work. The Caucasian is subjective, the Negro objective. The Caucasian .... is dominant and domineering, and possessed primarily with determination, will-power, self-control, self-government, and all the attributes of the subjective self, with a high development of the ethical and aesthetic faculties. The Negro is in direct contrast by reason of a certain lack of these powers, and a great development of the objective qualities. The negro is primarily affectionate, immensely emotional, then sensual and under stimulation passionate. There is love of ostentation, of outward show, of approbation; there is love of music, and capacity for melodious articulation; there is undeveloped artistic power and taste — Negroes make good artisans, handicraftsmen — and there is instability of character incident to lack of self-control, especially in connection with the sexual relations; and there is lack of *orientation*, or recognition of position and condition of self and environment, evidenced by a peculiar bumptiousness, so-called, that is particularly noticeable. One would naturally expect some such character for the Negro, because the whole posterior part of the brain is large, and the whole anterior portion small, this being especially true in regard to the anterior and posterior association centers." ('06, pp. 378-379).

Further, Bean reports that he found the ratio of the corpus callosum to the total brain weight to be greater in the Caucasian than in the negro, the anterior end of the corpus callosum in the whites being relatively large when compared with its posterior end.

In weight, the 51 negro brains, male, averaged 1292 grams, while the 37 white male brains averaged 1341 grams; the 28 female negro brains averaged 1108 grams, while the 9 white female brains averaged 1103 grams. The negroes were of a higher class than the whites, however, and mulattoes were included among them.

These conclusions of Bean's are very interesting, but they seem to need further confirmation before they can be accepted as final. Following Bean, Mall ('09) found no such

definite racial differences. He states that the brain weight of eminent men is 100 grams above that of men in general, and that the average white man has a brain 100 grams heavier than that of the average negro. But the frontal lobe as compared with the rest of the brain has the same relative weight in both negroes and whites, male and female. And the configuration of negro and white brains is the same. ".... with the present crude methods the statement that the negro brain approaches the foetal or simian brain more than does the white is entirely unwarranted." ('09, p. 20). "It certainly would be important if it could be shown that the complexity of the gyri and sulci of the brain varied with the intelligence of the individual, that of the genius being most complex, but the facts do not bear this out, and such statements are only misleading. .... brains rich in gyri and sulci, of the Gauss type, are by no means rare in the American negro." ('09, p. 24).

This investigator reviews the previous work done in this field, and comes to the final conclusion that there is no valid evidence to show significant brain differences from the point of view of race, sex or genius.

Karl Pearson ('07), after a study of the heads of 1000 Cambridge graduates and 5000 school children, states that his results corroborate the conclusions of previous articles, and sets forth his findings as follows: "The average correlation between head length or head breadth and intelligence is .11. .... no sensible modification is made in this result if allowance be made for either weight or stature." But "some 44 per cent. of very able men have heads smaller than the average slow man and some 44 per cent. of slow men heads larger than the average specially able man. This order of numerical relationship holds for the whole range of the characters dealt with, and in view of it we see how idle it is to assert that head measurements can be of any service in the prediction of intelligence. .. .. Differences in size of head will not account for at most 1/12, and probably not as much as 1/20, of the observed differences of capacity whether between adults or between children." ('07, p. 121).

Hrdlicka ('98) investigated the physical differences between 1100 white and 300 negro children, and found that the negro's forehead is narrower but not lower than that of whites, and that the negro's head is unusually long and nar-

row, while the heads of whites are of all shapes. He says the negroes' ears are smaller, their arms, hands and feet longer, and their chest somewhat deeper than is the case among white children. The weight of white children at all ages is somewhat greater than that of negroes, but the negroes at all ages and of both sexes are three or four pounds stronger with each hand.

Hrdlicka also finds, as did Le Bon in the abstract previously given, that the variation among the whites is greater than among the negroes. "The white children show more *diversity*, the negro children more *uniformity* in their normal physical characters. This fact becomes gradually more marked as we advance with the age of the children." ('98, p. 476).

It is impossible to make an adequate summary of the views set forth in this chapter; the abstracts given are themselves summaries. But it is clear that by far the greater number of writers who have dealt with the problem of the relative mental ability of the white and the negro take the view that the negro is inferior. This is particularly true of those investigators who have used quantitative methods. The negro has not shown the same capacity as the white when put to the test of psychological or educational experiment, and the racial differences revealed have been considerable. In the higher mental processes that go to make up the capacities necessary to a successful conduct of civilized life, the negro seems to fall short to a far greater degree than in the elementary traits which man has in common with the lower animals. In sense capacity, in instinct, in motor ability, there is no evidence that he inferior to the white man. It is in such matters as reasoning ability, the power to perceive relations, to exercise creative imagination, to subordinate a present passion to a distant end, that the weight of evidence and opinion indicates his relative deficiency.

With regard to the comparative equality of white and negro children up to the age of adolescence and the then ensuing superiority of the whites, the evidence is not at all clear. The theories as to the significance of adolescence upon which this view is based, have themselves undergone restricting modification in very recent years, and the whole matter is at present unsettled. There may be greater differences between

white and negro children either before or after adolescence, so far as is known. Or adolescence may have no appreciable bearing upon ascertainable racial differences.

The question of differences in brain structure between the two races is likewise subject to controversy. It seems to be indubitable that in brain size there is a difference, but the internal structure of the brain, which is far more significant for intelligence than size, is as yet a subject for debate rather than for evidence in so far as it concerns differences between whites and negroes.

The abstracts given are believed to include all of the experimental studies and a fair sampling of the better studies which are not experimental. It is probably true that there are more people who believe in racial mental equality than the reviews would indicate; equality is taken for granted, as in the greater part of our school system and in our political life; it is those who believe in racial inequality who consider their views novel enough for publication. It may be said that the main conclusion one may draw from a study of the literature bearing upon the mental side of our race question is that we have taken a step toward its solution, but that the problem is still a problem.

The evidence with regard to the relative ability of pure negroes and mulattoes will be discussed in Chapter IV, as will that bearing upon racial variability.

CHAPTER II

THE SUBJECTS AND THE TESTS

The Subjects

The experiments to be described herein were made in December, 1914, upon pupils in the schools of Richmond, Fredericksburg and Newport News, Virginia. According to the Census for 1910 ('10), Richmond has a population of 127,628, of whom 36 per cent. are negroes; Fredericksburg has a population of 5874, of whom 25 per cent. are negroes; and Newport News has a population of 20,205, of whom 36 per cent. are negroes. In the State as a whole, 32.6 per cent. of the population are negroes. The white inhabitants of these cities are to a very large extent native born and of native parentage; in the state as a whole 95.4 per cent. of the white population is native born and of native parentage, and in these cities the percentage does not considerably differ from that of the state.

The Census shows that in Richmond 1.2 per cent. of the native white population ten years of age and over are illiterate, while 19.6 per cent. of the negroes are illiterate. In Fredericksburg the corresponding percentage of white illiteracy is 1.5; that of negroes is 20. In Newport News the percentages are: whites, .6; negroes, 12. In the state as a whole, 8 per cent. of the white population and 30 per cent. of the colored population are illiterate. It is thus evident that the cities have a smaller percentage of illiteracy, both white and colored, than the state, and that a much greater proportion of the negroes than of the whites is illiterate.

The percentages of the population 6-14 years of age that attend school are as follows, according to the Census: Richmond—native whites, 79.2 per cent.; negroes, 65.2 per cent. Fredericksburg—whites, 76 per cent.; negroes, 64 per cent. Newport News—whites, 76; negroes, 69 per cent. In the

state as a whole 73.2 per cent. of the white and 58.7 per cent. of the colored population 6-14 years of age attend school. It thus appears that a somewhat larger percentage of whites than of negroes attend school, and that this difference between white and colored school attendance is only slightly less in the cities than in the state at large. It should be noted that there is no compulsory education law in any of the cities mentioned, and that only an inconsiderable fraction of the population of the state attend school under such a law.

So far as these figures show, the white and colored populations of the cities in which the tests were made do not differ significantly from the general white and colored populations of Virginia. The negroes, in the cities and in the state at large, attend school less than do the whites in proportion to their numbers and are considerably more illiterate.

This last consideration, that the whites attend school in larger proportion than the negroes, and that the negroes are more illiterate, indicates that on the whole the negroes who do attend school are a more closely selected group than are the whites who attend school. It is a rarer occurrence for a negro to become educated. The school selects for its operations a more circumscribed group of negro than of white children. The Richmond School Report for 1912-'13 ('14) strengthens this conclusion.

The figures in the report show that of the total white school enrollment, 10.53 per cent. are in the high school; of the total colored school enrollment, 4.97 per cent. are in the high school. That is, that out of an equal number of pupils from each race, there are twice as many white as colored of high school grade. If we compare the percentage of the total school population, white and colored, enrolled in elementary and in high schools, we arrive at the same result. Of the white and colored school populations, there are 54 and 55 per cent., respectively, enrolled in the elementary schools; but there are 7.5 per cent. of the white and only 3.1 per cent. of the colored school population enrolled in the high schools. The same percentage of the white and of the colored school populations is enrolled in elementary schools, but there is twice as great a percentage of the white as of the colored enrolled in high schools. Of the colored population as a whole, a smaller proportion is in school as compared with the whites; and of those in school, a smaller

proportion is in high school. It is a rarer thing for a colored than for a white child to attend school at all; it is a much rarer thing for a colored school child to be in high school. Colored high school pupils are the "chosen few" of their race to a greater extent than are white high school pupils.

The nature of the selective factors which thus act more intensively upon negroes than upon whites as the school grades advance is difficult to ascertain. Among the causes of elimination from school are such matters as poor health, poverty, mental or moral deficiency, lack of ambition or energy. It would seem that these forces, in the long run, must select for survival in the school system those who by reason of their own capacity, as represented in themselves and in the inheritable traits which prompt and enable their parents to send them to school, are best fitted to make progress in academic work. It would seem that the school must select as well as train those who have greatest ability and who thus profit most by school attendance. That this is true in the case of the high school's selection of negro pupils is especially indicated by the following considerations.

The figures for retardation in the schools of Richmond are as follows: In the white elementary schools, 51.8 per cent. of the pupils are above the normal age for their grade; in the colored elementary schools, 75.0 per cent. of the pupils are above the normal age for their grade. While in the white high school 52.1 per cent. of the pupils are above the normal age for their grade, and in the colored high school, 55.8 per cent. of the pupils are above normal age. The colored elementary pupils are 23.2 per cent. more retarded than are the white elementary pupils; the colored high school pupils are only 3.7 per cent. more retarded than are the white pupils of their grade. It is evident that the pupils who do not accomplish what is expected of their age drop out of the negro schools before high school is reached to a greater extent than out of the white schools. Indeed, while it appears from the figures that the colored pupils who are eliminated from the school system are those who do not perform the work of their age, it does not appear that this is true of the whites. It would almost seem that whereas the negro goes to high school by reason of his ability and determination, the white goes on account of some other incentive, such as, perhaps, social pressure or the custom of his class. It is not unreasonable to con-

clude on the basis of the figures for retardation that one of the selective factors which operate to a greater extent upon colored than upon white pupils is inability to do the school work expected of their age. In this connection it should be recalled that Phillips, in a study reviewed in Chapter I, found the relative percentages of white and colored retardation in the elementary schools of Philadelphia to be about the same as those found here; and that his investigations with the Binet tests showed that the greater pedagogical retardation of the colored pupils was paralleled by their greater psychological retardation.

When we divide the elementary school into primary and grammar grades, we find that 35 per cent. of the white elementary pupils are in the grammar grades, while only 21 per cent. of the colored elementary pupils are in these grades. This is in confirmation of our conclusion that the higher grades have a larger percentage of the white than of the colored children. But when we divide the high school into two parts, consisting of the first and second and the third and fourth years, respectively, we find a different situation. Twenty-five per cent. of the white high school pupils are in the third and fourth years combined, while 28 per cent. of the colored high school pupils are in the third and fourth years combined. Here we have a larger proportion of colored than of white pupils in the upper years. It is interesting to note that Mayo, in a quotation previously given, found the same situation in the high schools of New York. The colored pupils studied by him remained in school longer than did the white pupils. It seems that after the high school is reached, selective factors eliminate a larger percentage of white pupils than of colored.

This tends to corroborate the view expressed above, that the negro who enters high school does so because of his ability and determination, whereas the white high school pupil often enters by reason of social pressure, custom, or the tradition of his race. There is a marked difference between the work of the high school and that of the elementary school. One of the problems of modern education is to lessen the gap between the two. Within either school the work of a given grade is not much more difficult than the work of the grade below it. But the first year of the high school is much more difficult than the last year of the elementary school. This increased diffi-

culty causes a large number of the less capable pupils to drop out of high school at the end of the first or second year. A larger proportion of white than of colored pupils so drop out because a greater proportion of white than of colored entered without serious purpose or the requisite ability. The negroes who enter high school are a more closely selected group, and they therefore more nearly finish the course. The figures show that the percentage of retardation in the colored high school is the same for the first two years and for the last two years; in the white high school there is a considerably greater percentage of retardation in the first two years than in the last two.

Another fact which bears upon the relative action of selective factors upon white and colored children in the public schools is that a much larger proportion of white than of colored pupils of high school grade are not enrolled in the public schools at all, but attend private institutions. This is particularly true in Richmond; and on the whole the pupils who attend private schools are of better social standing, and therefore, on the whole, probably of greater ability, than the average of the school population. The public high school thus loses a number of pupils of ability, and this loss is not felt by the colored high school as it is by the white.

Taken all together, the facts brought out show that the colored child in the schools of Richmond, in the upper grades and especially in the high school, is much more closely selected by reason of his ability than is the white child. We should therefore expect the colored pupils of advanced grade to attain a higher score in psychological tests than those of lower grade, when compared with white pupils. This we shall find to be true. And we shall also find, in marked confirmation of the present contention, that colored high school pupils excel colored elementary pupils to a much greater extent than white high school pupils excel those of lower grades. Phillips, Strong and Pyle, (see Chapter I), found the mental difference between whites and negroes to become less as the grades advance. The explanation of their findings is probably to be found in this matter of selection. It seems likely that if one could test a random and not an educational selection of whites and negroes, he would not find the difference between the races to decrease with age. And it appears to be certain that racial mental differences discovered by means of tests upon

school children are in reality smaller than the actual differences between the races.

The detailed figures for the school systems of Fredericksburg and Newport News are not available, but there is no reason for believing they would point to a different conclusion from that found in Richmond. The Richmond figures are much more reliable than those of the other two cities would be since they are based upon a far greater number of pupils. It may be said that the Richmond figures are derived from the records of 12,018 white and 6184 colored children.

The number of pupils tested in these experiments was as follows: In Richmond, 269 white and 319 colored; in Fredericksburg, 84 white and 63 colored; in Newport News, 133 white and 39 colored. In all, there were 486 white and 421 colored pupils—a total of 907. The Richmond pupils were in the three years* of the grammar school and the four years of the high school; in the grammar grades there were 149 white and 175 colored; in the high school there were 120 white and 144 colored. The Fredericksburg pupils were: white, 36 in the 6A and 7A grades and 48 in the high school; colored, 28 in the 6A and 7A grades and 35 in the high school. In Newport News all of the pupils tested were in the grammar grades: 133 white, in grades 6B, 7A and 7B; and 39 colored in grades 6A and 7A. Throughout the study main reliance will be placed upon the results obtained from Richmond, on account of the greater number of pupils tested there; the results from Fredericksburg and Newport News will be used as corroborative. It may be remarked that in all ways the only difference between the results from the three cities is that those obtained from Fredericksburg and Newport News emphasize the racial differences found to a somewhat greater degree than do those from Richmond.

The high schools tested in Richmond were the John Marshall, white, and the Armstrong, colored. These are the only high schools in Richmond. In the John Marshall High School

*The elementary school in Virginia covers only seven years. The first four years are the primary, the last three are the grammar. The grammar grades are 5A, 5B, 6A, 6B, 7A, 7B. In the high school there are four years, and the grades are 1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B. "A" means the first half of a year; "B" means the second half of a year.

there are* 1394 pupils, 535 boys and 859 girls; in the Armstrong High School there are 76 boys and 257 girls, a total of 333. The elementary schools tested were the Madison, white, and the George Mason, colored. These were chosen because in the opinion of the school authorities their pupils were fairly typical of the average white and colored populations of the city. The Madison School has 871 pupils, 398 boys and 473 girls; the George Mason School has 849 pupils, 360 boys and 489 girls. All four schools are parts of the public school system.

In Fredericksburg, the white pupils tested were in attendance upon the one public school building for whites in the city. The colored elementary pupils were in the colored public school. But the colored high school pupils were in a private school conducted by colored people, since the city does not maintain a colored high school. This private school conforms closely in all essential respects to the requirements for public high schools, and its pupils may be fairly compared with those in the public schools.

In Newport News, the white pupils were in the John W. Daniel School and the colored pupils were in the John Marshall School. These schools were typical of the schools for the two races, in the opinion of the school authorities. No high school pupils were tested in Newport News, since there is no colored high school.

In selecting the pupils from the various schools for the tests, in some instances the only grade of a given degree of advancement in the school was tested; in other instances, where choice had to be made among several grades of a given degree of advancement, the school authorities selected a grade of average ability; in still other instances, where it was necessary to test only part of a given grade, the selection of pupils was made by taking them in alphabetical order from the roll. By these means it is believed that the selection of pupils for the tests was made a fair one in all of the schools.

That the schools themselves were comparable as between the two races there is no valid reason to doubt. All of them pursued the same general course of study; within a given city all were parts of the same system, with the exception of the colored high school in Fredericksburg. The teachers and

*These are the figures for 1912-'13. The present figures are not available, but they do not differ significantly from those given.

principals of the colored schools were colored in Fredericksburg and Newport News. In Richmond, the colored elementary school had colored teachers and a white supervising principal; the colored high school had white teachers throughout. No difference could be perceived in the attitude of the two races toward the tests: both white and colored seemed to enjoy the work rather than the reverse, and both worked with vigor.

The number of pupils tested is set forth in detail in Tables 1 and 2. In the treatment of results, no account is taken of a record from only one pupil, and the two lowest and the two highest ages are disregarded on account of the small number of pupils in them.

TABLE I.

NUMBER OF SUBJECTS TESTED—CLASSIFIED BY AGE AND SEX

Richmond.

Ages	9	10	11	12	13	14	15	16	17	18	19	20	21	Totals
White Boys.	1	1	12	15	20	31	17	11	18	5	..	..	..	131
White Girls.	..	..	11	18	21	27	18	16	20	5	2	..	..	138
Col. Boys...	..	1	6	14	19	18	16	14	9	6	4	..	..	107
Col. Girls...	..	3	9	22	34	42	27	33	23	15	3	..	1	212

Fredericksburg.

White Boys.	..	..	3	2	7	11	7	6	6	3	..	..	..	45
White Girls.	..	..	1	6	6	7	6	6	5	2	..	..	..	39
Col. Boys...	..	..	1	3	2	1	3	5	1	2	4	..	..	22
Col. Girls...	..	..	1	..	9	10	3	2	10	2	2	1	1	63

Newport News.

White Boys.	..	..	3	15	20	12	5	..	..	..	..	..	..	55
White Girls.	..	..	5	18	25	23	4	2	..	..	..	..	..	77
Col. Boys...	..	..	1	2	..	4	1	..	..	..	..	..	..	8
Col. Girls...	..	..	..	7	6	12	3	3	..	..	..	..	..	31

TABLE II.

NUMBER OF SUBJECTS TESTED—CLASSIFIED BY GRADES

Richmond.

Grades	5A	5B	6A	6B	7A	7B	1A	2A	2B	3A	4A	Totals
White	38	35	19	21	18	18	30	29	..	35	26	269
Colored	42	38	35	22	19	19	42	31	21	25	25	319

Fredericksburg.

White	..	..	20	..	16	..	14	12	..	11	11	84
Colored	..	..	21	..	7	..	10	9	..	8	8	63

Newport News.

White	..	..	..	59	40	34	..	..	..	..	..	133
Colored	..	..	23	..	16	..	..	..	..	..	..	39

A fact should be noted in comparing the results from the white and the colored high schools of Richmond. The white pupils in each of the four years tested were in the first, or "A", half of the year's work. The colored pupils, however, on account of the way they are classified in the school, were in both the first and the second, the "A" and the "B", halves of each of the four years work. To state it in another way, the white high school pupils were in grades 1A, 2A, 3A and 4A; while the colored high school pupils with whom they are compared were in grades 1A and 1B, 2A and 2B, 3A and 3B, and 4A and 4B. Thus the colored pupils were farther advanced academically than were the white pupils in each of the four years. For the sake of simplicity the high school grades for both white and colored are put down as "A" grades in the tables. But this is somewhat unfair to the white pupils, since the colored were in both "A" and "B" grades in about equal numbers.

The ages of the grades tested are shown in Table 3, and the difference in ages between the two races is shown in Table 4. The colored pupils are older, grade for grade. In Richmond, the difference is .36 of a year, in Fredericksburg it is 1.02 years, and in Newport News it is 1.7 years. The difference as shown for Richmond should be reduced somewhat on account of the fact that the colored high school pupils are in reality more advanced in grade than the tables would indicate, as was pointed out in the preceding paragraph. Stetson,

TABLE III.

AGES OF THE GRADES TESTED

Richmond.

Grades	5A	5B	6A	6B	7A	7B	1A	2A	2B	3A	4A
White Av.....	12.4	12.5	13.4	13.2	13.3	13.6	14.4	15.4	..	16.5	17.0
A.D.	1.1	1.1	1.4	.9	1.0	.9	.9	1.1	..	.8	.5
Col. Av.....	12.3	12.8	12.7	13.5	14.0	14.5	14.9	16.2	16.5	16.8	17.6
A.D.	1.0	.9	.8	1.0	.9	.8	.7	.8	1.0	.7	1.1

Fredericksburg.

White Av.....	..	..	12.5	..	13.6	..	14.4	15.6	..	16.2	16.9
A.D.	..	..	.9	..	.9	..	.8	1.0	..	.7	.5
Col. Av.....	..	..	13.2	..	14.0	..	15.4	17.2	..	17.3	18.2
A.D.	..	..	1.0	..	.9	..	1.6	1.0	..	.9	1.2

Newport News.

White Av.....	..	..	..	12.8	12.6	13.6	..	..	..	..	..
A.D.	..	..	..	1.0	.8	.6	..	..	..	..	..
Col. Av.....	..	..	13.0	..	14.3	..	..	..	..	..	..
A.D.	..	..	1.0	..	.8	..	..	..	..	..	..

TABLE IV.

AGES—DIFFERENCE IN YEARS BETWEEN THE WHITE AND THE COLORED SUBJECTS TESTED

(Minus signs indicate that the colored subjects are of greater age.)

Richmond.

Grs.	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E.
	.1	—.3	.7	—.3	—.7	—.9	— .5	— .8	— .3	— .6	— .36	.09

Fredericksburg.

	..	..	—.7	..	—.4	..	—1.0	—1.6	—1.1	—1.3	—1.02	.11

Newport News.

	..	..	..	..	—1.7	..	..	..	..	..	—1.7	..

Mayo, Phillips and Pyle, (see Chapter I), also found that the colored children tested by them were appreciably older than white children of the same school grade, and this is indicated by school censuses in general, (see Mayo, '13).

This age difference is significant as showing that colored pupils are less advanced than white pupils in school work. But it is not important in a comparison of the standing of the two races in mental tests, if the comparison is made by both age and grade. When the scores are compared by ages, the white pupils in the comparison will be of higher school grade; when they are compared by grades, the colored pupils will be of greater age. In the former case any possible advantage will be on the side of the whites; in the latter case it will be on the side of the colored pupils. If success in the tests is not dependent upon school training, it is obvious that an age comparison is the better. But if success in the tests does depend upon school training, a comparison by grades is to be preferred. Where the influence of school training upon standing in the tests is unknown, a comparison by both age and grade would seem to be advisable. In this monograph the results in all of the tests are set forth by both ages and grades, but evidence will be brought forth to show that ability to perform the tests is not appreciably dependent upon school training, and consequently the age comparisons are the more reliable. A comparison by ages, indeed, is to be preferred to one by grades in all serious investigations of racial mental differences. For a grade is essentially a group of people selected because they are much alike in capacity. And a mental test which is dependent upon academic training

must be comparatively worthless as an index of true racial ability.

The Tests

The tests employed in this investigation were selected primarily with a view to ascertaining racial differences in the higher rather than in the lower intellectual capacities. It is in the higher capacities that men are supposed to differ most. And it is these capacities that are of greatest influence in determining their relative achievement. The investigations previously made and the views previously held indicate that there are no considerable group differences in sensation, in motor control, in native retentiveness. The differences to which evidence has pointed have been, on the side of intellect as opposed to feeling, in such abilities as those included under the terms constructive imagination, the apprehension of meaning, reasoning power. These latter traits divide mankind into the able and the mediocre, the brilliant and the dull, and they determine the progress of civilization more directly than do the simple and fundamental powers which man has in common with the lower animals. While testing these traits, it was thought advisable at the same time to employ certain tests of lower capacity for the sake of comparison.

The tests used were the Woodworth and Wells Mixed Relations, I and II; a form of the Ebbinghaus Completion Test; a Cancellation Test; and one of the Columbia Maze Tests. A test of immediate memory was also given, but the results from it were discarded. In this test the series of digits to be remembered were presented orally by the experimenter, and some of the pupils, both white and colored, undoubtedly wrote down the numbers surreptitiously as they were called, instead of waiting until after the series were finished. It is interesting to note that evidence of this occurs more frequently in the results from the lower than from the higher grades, and more frequently in the colored than in the white schools. A possible "study of dishonesty" is suggested.

The mixed relations test, in its various forms, has been used by a number of investigators, and has been highly recommended as a test of intelligence. Wyatt ('14), in a study undertaken in order to determine reliable intelligence tests, found correlations of .80 and .62 between the mixed relations test and careful subjective estimates of intelligence, in two

groups of subjects. He also found a correlation of .85 between the mixed relations and completion tests, and states that these two tests correlate more highly with intelligence than do any of the thirteen other tests employed by him, and that they also correlate more highly with the other tests as a whole. Vickers and Wyatt ('13) attempted to determine suitable tests for assigning children to school grades, and found the mixed relations, completion and hard opposites to be most satisfactory. The correlations between the mixed relations test and intelligence, (intelligence being defined as adaptability to new conditions), were .51, .61, .64 and .86 with four different classes of children. The reliability of the test, as measured by its correlation in repeated trials, was high, the average correlation between the trials being .70. Burt ('11) found a correlation of .52 with intelligence, and a coefficient of reliability of .92. He recommends the test, along with the completion test, as being an excellent indication of ability in logical inference or reasoning.

The particular form of the test as used is the one designed and standardized by Woodworth and Wells ('11), its originators. It consists of two parts, numbered I and II, and is in reality two separate tests. The parts are of equal difficulty and the twenty relations in each part differ as little in difficulty as it was possible to make them. The test is printed in full in the appendix, as are the others used in this investigation.

It is always difficult to state just what mental function is experimented upon by a given test. The various traits so overlap and are so dependent upon one another in their action that no one trait can be completely isolated. If a test correlates well with other tests of the same or related performances, it may be taken as a reliable index of ability in the functions involved, although the specific functions themselves cannot be definitely and exhaustively described. Most tests are so regarded. But within limits it is possible to state approximately the functions that are tested. The mixed relations test is primarily one of controlled association of the sort that is the basis of all efficient reasoning. It demands that a relation be perceived and applied; and then that another and a different relation be perceived and applied, and so on through the test. A simple test of controlled association, such as the opposites test, requires that a mental set or

determining tendency be previously formed at the instance of the experimenter, and then applied unchanged to stimuli as they occur. The mixed relations test goes further than this, and requires that the mental set itself be determined by the subject before it is applied, and that a different mental set be fixed for each stimulus. It involves what James ('92) has called "sagacity", and requires association by similarity, the perception of meaning, voluntary control of ideas. Woodworth and Wells state that the test measures skill in handling associates by means of a determining tendency; mental alertness and flexibility; that it is a "logical relations" test. It is safe to say that the functions involved are those most intimately concerned in that successful handling of material which distinguishes the intelligent and mentally active individual from the unintelligent and dull. The language factor is of course present, but where the words used are simple and well known, this is not important in a test of individual or group differences. (See Simpson, '12, p. 69ff.).

The completion test was invented by Ebbinghaus ('97), and has been widely used. Wyatt ('14), as mentioned above, recommends the test as one of intelligence; he finds correlations of .85 and .61 with subjectively estimated intelligence in two classes of school pupils. Vickers and Wyatt ('13) found correlations of .82, .88, .76 and .82 with intelligence in four groups of subjects. And they found correlations of reliability of .84, .87, .66 and .69 in successive trials with the four groups. Burt ('11), using two forms of the test, found correlations with intelligence of .48 and .53. Brown ('11) states that the test correlated .43 and .69 with general intelligence in two groups of subjects. Simpson ('12) found a correlation of .92 for reliability. Correlations between the completion and a number of other tests used by him were: hard opposites, .92; easy opposites, .75; memory of words, .92; memory of passages, .91; cancellation, .68; adding, .71; geometrical forms, .54; learning pairs, .72; completing words, .50; drawing lengths, .26; estimating lengths, .52. A correlation of .67 between the completion test and the average of nine other varieites of association tests was reported by Whitley ('11).

The form of completion test herein used is composed of the twenty-five separate sentences which constitute sentences 23 to 47, inclusive, of a completion test designed by Mr. M. R.

Trabue*, of Columbia University. These sentences are graduated in difficulty, and have been standardized by Trabue in experiments upon several thousand school children. Numbers 23 to 47 were selected because they were well adapted in difficulty for use with the school grades to be tested. A completion test in the form of separate sentences has several advantages over one in paragraph form, such as has generally been used. Where a paragraph is employed, accidental factors are much more likely to influence the result. The subject of the paragraph may be relatively unfamiliar to any given pupil; or one unusually difficult part of the whole may render the completion of a large section of the rest unduly difficult. This cannot occur where there are a number of separate sentences dealing with different subjects and each counting as a unit. Then, too, in scoring it is probably better to score on the basis of sentences than of words. Thought proceeds by judgments, whole sentences, not by words. And in a test of thought power rather than of language power one should be able to gauge the apprehension of meaning as a whole rather than what is perhaps the more distinctively literary ability required to fit a word into a specific context. It is thought, not its vehicle, that it is to be measured. The ability to use language must probably remain a factor in this test, though not the most important factor where the material is familiar. Thought and language are largely implications of each other, and in great measure ability in one means ability in the other. But as far as possible the language factor should be elminated and the thought factor emphasized.

The mental functions measured by the completion test are akin to those involved in the mixed relations test. This is indicated by the high correlation between the two. Ebbinghaus ('97) described it as essentially a test of intelligence, requiring the ability to combine separate impressions into a coherent whole. Simpson ('12) calls it a test of selective thinking. Whitley ('11) classes it among her association experiments. It would seem that the ability to perceive relations, to apprehend meaning, to control association in order to fill a gap, is implied in a successful performance of the test. Association or selective thinking or intelligence are perhaps equally good terms to apply to the processes. In the language

*Since the above was written a preliminary account, (Trabue, '15), of this test has been published.

of popular speech, the test requires "good sense" and a "quick mind".

The maze test employed is the so-called straight maze designed and used at Columbia University. This has been found (see Whitley, '11) to be the most satisfactory form of maze test. It is comparatively easy to score, and the eye strain resulting from its use is negligible as compared with certain other forms of maze. A correlation of .49 was found by Whitley between the straight and the average of three other varieties of the test. Simpson ('12), using a scroll maze, found a coefficient of reliability of .76 for the test and a coefficient of correlation of .26 with the average of twelve tests of intellectual functions.

The traits measured are quickness and accuracy of movement in drawing a line between the two sides of the maze without touching them—motor as opposed to intellectual abilities.

The concellation test is the familiar "A Test", designed by Cattell and Farrand ('96). It is a regulated pied text, and contains one hundred A's and sixteen of each of the other letters—five hundred capital letters in all. The test has been used by many investigators and in a variety of forms, such as the "A—T" test, the "E—R" test, etc.; and it has been described as a test of various functions. Pillsbury ('08) says it is one of the best tests of degree of attention. Whipple ('10) agrees that this is one of its main features. Bourdon ('95) used it to measure discriminative ability. Judd ('07) similarly classes it as a test of discriminative reaction. Cattell and Farrand ('96) regarded it as a test of rate of perception. Thorndike ('04) also used it as a test of perception. Pyle ('13) gives it as a test of perception and attention. On the whole, it seems that the test measures all of these capacities as they function together. To cancel A's it is necessary to perceive them discrimnatively and attentively, and to react by the simple cancelling movement. The correlations of the test with other tests and with class standing are generally small and sometimes negative. (See Whipple, '10).

In giving the tests, the instructions to the subjects were by means of examples on a blackboard, supplemented by such oral directions as were necessary. A constant order of succession was maintained among the tests. The maze was given

first, while the pencils were sharp, then followed cancellation, mixed relations I, mixed relations II, and completion. This order was invariable except in Newport News, where, on account of a lack of time, the mixed relations and completion tests were given first, to make sure that they, as the most important, would be finished. The schools were taken as wholes, one after another, and the lower grades were generally tested before the higher. There was no appreciable chance for aid in working the tests to be transmitted in conversation from grade to grade.

The time-limit method was used, and the effort was made to allow just enough time in each test to enable to quickest of all the subjects to finish. In Fredericksburg, where the tests were given first, the time allowed for the mixed relations test was 15 sec. longer than elsewhere, and the time allowed for the completion test was 30 sec. longer. The time was reduced in the other cities because several of the Fredericksburg subjects finished the work before the time limit was reached. This extra time in Fredericksburg had apparently no effect upon the relative standing of the white and colored groups, but it is obvious that if the time allowed is longer than is necessary for the quickest subjects to complete the test, the group differences will be somewhat reduced. The brightest of the pupils will not be able to accomplish as large an amount of work as their ability warrants. On the whole, the time limits as used were approximately the periods required by the ablest of the subjects. With the exception mentioned, these times were as follows, for all grades: each mixed relations test, 1 min., 45 sec.; completion test, 8 min., 30 sec.; maze test, 1 min., 30 sec.; cancellation test, 1 min., 20 sec. The subjects were told that they would have barely time to finish if they worked at their highest speed. In all of the tests the directions were to try for as great speed as possible, while not making any mistakes. If an unusually difficult part of the test should be met, in the mixed relations and completion tests, they were advised to pass it by without a too great waste of time. A stop-watch was used, and all directions were given by the writer, who also did all of the scoring.

In scoring the mixed relations test, each accurate relation recorded was graded 2; each partially correct relation was graded 1; each error was graded 0, as was each omission. The

possible maximum score was thus 40 for each of the two parts in which the test was given. The scoring was, of course, absolutely uniform throughout, for each type of correct, partially correct or incorrect record.

The completion test was scored in the same way. Each correct sentence was rated 2; each partially correct sentence was rated 1; and each incorrect or omitted sentence was rated 0. Since there were twenty-five sentences, the possible maximum score was 50.

The maze test measured two things, speed and accuracy. Accuracy was scored by counting the number of touches made. Speed was determined by the amount of the test completed or the distance traversed. In rating this, each straight section of the maze was counted 1. Since there are 140 straight sections in the test, the possible maximum score for speed was 140.

This test presents a difficulty in its scoring. The two quantities which it measures are variables which do not maintain a constant ratio to each other. If only a short distance is traversed within the time limit, the number of touches is small as compared with the amount done. But if a great distance is traversed, the number of touches is large as compared with the space gone over. To illustrate: a distance of 60 will mean, say, 4 touches, a ratio of 1 to 15; but a distance of 120 will mean, say, 20 touches, a ratio of 1 to 6. And yet the latter record may be as good as the former. As speed increases, accuracy normally decreases, and in a constantly changing ratio.

In handling the maze test, a number of investigators have chosen to deduct a certain arbitrary amount from the speed record for each touch. Thus Whitley ('11) and Simpson ('12), using the amount-limit method, add 5 sec. and 10 sec., respectively, for each touch made. But this cannot be satisfactory. A touch made by a subject who works at great speed is far less significant than a touch made by a subject who works at a much lower speed. Where the ratio of accuracy to speed is a variable one, as in this case, no constant figure can be deducted from the speed record for each error.

What is needed is a set of ratios, expressing the relation of touches to distance at each of a large number of possible distances. Such a set of ratios could be ascertained by adequate experiment, and they would be very interesting in

themselves and also very useful, since there is no other practicable group test of motor capacity. But at present they do not exist, and it is therefore impossible to give the best treatment to the results of the maze test.

The method that is followed herein is to set forth the number of touches and the distance covered by each group of subjects. The comparison of group with group must then be based on the relative number of touches made and the relative distance traversed. If the score for either touches or distance, or both, should be the same for each group, an accurate comparison would of course be possible. Or if one group should exceed the other in touches but not in distance, or in distance but not in touches, an accurate comparison could be made. It generally happens, however, that one group exceeds the other in both touches and distance, and in this case the difficulty arises. The ratio of touches to distance is normally smaller in a slow group than in a fast one, and smaller to an unknown degree.

The cancellation test also measures both speed and accuracy, but here the difficulty in equating the two is not so pronounced. The score for speed is obtained by counting the number of A's cancelled; the score for accuracy is arrived at by counting the number of A's omitted in the amount of text gone over.

The number of A's omitted is very small, and is constantly so from group to group. Roughly, only about one-third or one-half of the subjects make any omissions at all. And it does not appear that there is any very definite relation between the number of omissions and the number of cancellations. Several investigators have reported this to be true of the test. Woodworth and Wells ('11) say there are no workable individual differences in accuracy and that there is little reason for its being scored. Binet ('03) found that subjects worked with approximately equal accuracy. Others, as Thorndike ('04), ignore omissions in giving results from the test. Whipple ('10) and others, however, think omissions may be important. Both omissions and cancellations are given for all of the groups in this study; but it will be apparent that significance can be attached only to the latter.

Of the tests used, the mixed relations and the completion were given to all subjects. The maze and the cancellation

were not employed with the white high school pupils of Richmond, on account of a lack of available time. The maze was also not used with the white elementary pupils of Newport News. The white elementary pupils of Fredericksburg, through an oversight on the part of the experimenter, did not sign their names to the maze test, and their records in this test can consequently be used only in grade and not in age and sex comparisons.

The total time consumed by these tests in the case of any individual subject was small, and it cannot be supposed that the records obtained from a given individual are an accurate index of his relative ability in the traits measured. Further trials would be necessary to establish the final standing of any one of the pupils in the tests. But while this is true, it is also true that the tests are sufficient to establish with accuracy the relative standing of large groups of subjects as wholes, and it is a group—a racial—comparison that is in question. Where a group is tested, the chance inaccuracies which deflect the true position of one individual in one direction serve also to change the position of another individual in the opposite direction, so that on the whole the central tendency of the group remains unchanged from what it would be in the case of a very great number of measurements, the practice effect, of course, being disregarded. The individual inaccuracies balance each other, and the group standing is unaffected by them. It is improbable that many repeated trials would appreciably disturb the average score. This view is taken for granted in all tests upon large numbers of subjects; Thorndike ('04) gives illustrations of its validity. The mixed relations test as herein used is another illustration, as will appear. For the test is given in two parts—is, in reality, two tests—and the relative standing of the groups compared is the same in each. Woodworth and Wells ('11), indeed, recommend a short test of this and related kinds as being better than a long one, since it is freer from interferences of a disturbing character. So the final average results of these tests may confidently be taken as reliable measures of the relative ability of whites and negroes in the traits involved, although the time consumed in the actual testing was short.

CHAPTER III

GENERAL COMPARISON OF WHITES AND NEGROES

In the present chapter a general comparison is made between the scores of the white and the colored subjects. In setting forth the results, the tables and graphs are arranged in the same order for each test. First are given the average scores made by each age and sex and by each grade, with their average deviations. The tables containing these data are the basis of the comparisons made in the other tables, and they also give the figures which are represented by the graphs. The graphs are next in order, and serve to make the group relationships contained in the tables somewhat plainer. It may be noticed that the graphs and the tables of comparison which follow them omit those ages and grades in which there are not figures for both races: no comparison is made unless the ages and grades are alike. The results from Richmond, Fredericksburg and Newport News appear in succession in each table. There are no graphs for the two latter cities.

Following the graphs, for each test come the tables in which the group comparisons are made. First appear the actual differences between the scores obtained by the two races, classified by age and sex and by grades. The averages of the separate age and grade differences are given, with their probable errors. These averages, of course, are the most reliable figures for comparison. Next are the tables which set forth the percentage of the score of the whites which was obtained by the negroes, with the averages of the separate ages and grades and the probable errors of the averages. The tables which show the actual differences between the scores and those which show the percentages deal with the same racial differences, and are simply two ways of exhibiting the same group relationships. Lastly, as still another mode of comparison, for each test is given the percentage of each age and grade of the colored subjects that reaches or exceeds the

average score of the white subjects of the same age or grade. The averages and probable errors of the separate age and grade percentages are given as before. This comparison is made only for Richmond, since the relatively small number of pupils tested in Fredericksburg and Newport News would render it somewhat unreliable for those cities. A group comparison by means of the percentage of one group reaching or exceeding the average of the other requires a rather large number of subjects to be of value. If the number is small, chance inequalities in the distribution of the groups may make the percentage appear to be much too high or much too low.

It should be said that this comparison in terms of the percentage of the negroes reaching or exceeding the average of the whites is valid only in so far as the groups follow a normal mode of distribution. That is, the average of the groups must also be approximately the median of the groups. Or to put it in another way, approximately fifty per cent. of the groups must reach or exceed their own average. Otherwise, we would have fifty per cent. of the negroes reaching or exceeding the score obtained by 30 per cent. or 70 per cent., or any indefinite per cent., of the whites. The ideal procedure would be to ascertain the percentage of the negroes reaching or exceeding the median, rather than the average, of the whites. But in the present comparison the averages and the medians of the groups compared are approximately the same, as the following figures will show, and the mode of comparison adopted is a valid one.

In the mixed relations test, the percentage of the whites reaching or exceeding their own average in Test I is 50.0, P.E. 1.7, for all ages of the boys; 53.5, P.E. 2.2, for all ages of the girls; and 54.8, P.E. 1.6, for all grades. (The grades contain both boys and girls). In Test II the percentage for boys, all ages, is 55.0, P.E. 2.3; for girls, all ages, it is 55.9, P.E. 2.2; and for all grades it is 55.6, P.E. 2.1. It is thus evident that for the white subjects in this test the average and the median are approximately the same, and that the groups follow a sufficiently normal form of distribution for the percentage comparison to be made in terms of the average rather than of the median. The figures showing the percentage of the colored subjects reaching or exceeding their own average are as follows: Test I—boys of all ages, 48.4, P.E. 2.4;

girls of all ages, 48.7, P.E. 2.3; all grades, 48.5, P.E. 1.4. Test II—boys of all ages, 52.1, P.E. 2.5; girls of all ages, 51.2, P.E. 3.3; all grades, 52.0, P.E. 1.9. Thus the colored subjects are also seen to be so distributed that their central tendency is approximately the same whether measured by average or by median. It worthy of note that the percentage of subjects reaching or exceeding their own average is somewhat higher in Test II than in Test I. This is due to the fact that the scores themselves in Test II are higher than in Test I, on account of the practice effect of Test I, to such extent that several of the brighter subjects finished the second test before the time limit was reached, and thus did not attain their possible maximum score. This lowers the average standing in Test II so that more than fifty per cent. of the subjects reach or exceed it. This occurs for both races, though slightly more so for the whites than for the negroes, since the score of the whites was greater, as will appear, and more of them finished the test before the expiration of the time limit. A slightly larger percentage of the negroes, as will also appear, reached the average of the whites in Test II than in Test I. But this should not be taken to indicate that the negroes profited more by the practice in the first test than did the whites: both races reached or exceeded their average in greater numbers in the second test.

In the completion test, the percentages of white subjects reaching or exceeding their own average are: boys, all ages, 50.2, P.E. 2.0; girls, all ages, 52.2, P.E. 1.3; all grades, 52.7, P.E. 1.2. The percentages of colored subjects reaching their own average are: boys, all ages, 52.6, P.E. 2.6; girls, all ages, 54.2, P.E. 2.1; all grades, 54.4, P.E. 1.3. In this test, as in the mixed relations, the average and the median are approximately the same.

The maze test shows the following percentages of white subjects reaching or exceeding their own average: boys, all ages—Touches, 50.0, P.E. 3.3, Distance, 52.0, P.E. 1.6; girls, all ages—Touches, 52.4, P.E. 2.4, Distance, 46.8, P.E. 2.8; all grads—Touches, 48.2, P.E. 2.7, Distance, 49.0, P.E. 2.9. The percentages of colored subjects reaching or exceeding their own average in the maze test are: boys, all ages—Touches, 46.6, P.E. 1.9, Distance, 46.4, P.E. .9; girls, all ages—Touches, 45.6, P.E., .9, Distance, 44.4, P.E. 1.8; all grades—Touches, 47.8, P.E. 2.1, Distance, 51.2, P.E. 2.3.

In the cancellation test, the percentage of a group reaching its own average or the average of another group can be validly computed only for the cancellations, not for the omissions. Less than half of the subjects made any omissions at all, and the distribution of the omissions is consequently very assymmetrical. The percentages of whites reaching or exceeding their own average in cancellations are as follows: boys of all ages, 53.0, P.E. 1.3; girls of all ages, 49.6, P.E. 1.9; all grades, 49.3, P.E. 1.4. The percentages of negroes reaching or exceeding their own average in cancellations are: boys of all ages, 50.0, P.E. 3.6; girls of all ages, 52.2; P.E. 3.7; all grades, 53.7, P.E. 1.5.

These figures make it evident that we can compare the white and colored subjects in terms of the percentage of the colored reaching or exceeding the average of the white, since the distributions throughout are on the whole symmetrical.*

Perhaps something should also be said as to the other tables of comparison, those which show the actual differences between the scores of the two races and those which show the percentage of the score of the whites that is obtained by the negroes. It sometimes happens that investigators average the scores of a number of different ages or grades, and make comparisons by exhibiting the relation between such averages. But this procedure makes it impossible to compute the probable error of the differences, and thus renders the comparisons doubtful. If, for example, scores from ages 11 to 18 are averaged for two races, and a certain difference between the averages is set forth, one cannot tell from this difference alone whether any real racial superiority has been found.

*Note may be made of the fact that in a few ages and grades no colored subjects reached or exceeded the average of the whites, and that the percentage in such cases was put down as zero. But such percentages are really less than zero. And when they are counted as zero, as they are, in obtaining the average for all ages or grades, it is obvious that this procedure tends to make the average percentage too high. That is, it tends to make the racial difference appear to be less than it really is.

Another matter that also makes the racial differences found appear to be less than they really are, is the fact that in the tables which show the percentage of the score of the whites obtained by the negroes, the percentages are always expressed in terms of the white score. Hence whenever the negroes have a higher score than the whites, as they do in a few instances, the percentage expressing the fact is disproportionately large. For example, if the whites score 100 and the negroes score 75, the percentage is 75; but if the whites score 75 and the negroes score 100, the percentage is 133. These considerations affect the final averages only slightly, but they should be borne in mind.

It may be that the separate ages show a superiority first in favor of one race and then in favor of the other, and so on. What is needed to determine the validity of the difference is its probable error. This will indicate how constant the difference is from age to age—whether it is a true difference or is due to chance. Of course it will be recognized that probable errors can be computed for the averages of a number of different age or grade scores. But such probable errors will be larger than the racial variability from age to age would warrant, since scores normally increase with age. And they therefore cannot be used as accurate measures of the probable error of the racial difference.

Where, as in the tables of comparison contained herein, the differences between the scores of the separate ages are found, the average of these differences can be obtained and also the probable error of the average. If the differences for the separate ages are pronouncedly in favor of one of the two races, the probable error will be small as compared with the average. Even though slight, the average difference will indicate a real racial superiority if its probable error is small. But if the differences between the separate ages are chance differences which favor first one race and then the other, no matter if the average difference is large, it will yet be seen to be no true index on account of its large probable error. This principle is as applicable to those of the following tables which exhibit the percentage of the score of the whites obtained by the negroes, as it is to those which set forth the actual differences. In the percentage tables also, the average of the different ages is computed and its probable error is given with it.

Mixed Relations Test

The scores obtained by the two races in this test are shown in Tables 5 and 6, and in Figures 1-6. It may be noted that in Test II the scores are somewhat higher than in Test I. This is evidently due to the practice that the first test afforded. It may also be noted, (Figs. 3 and 6), that there is a pronounced jump in the scores of the colored grades when high school is reached, and that this jump does not occur in the scores of the white grades. This is probably the effect of the more intense action of selection upon the colored than upon the white high school pupils, as was pointed out in the preceding

chapter. In some of the high school years the colored are superior to the white subjects, but this does not occur in the elementary school.

TABLE V.

MIXED RELATIONS TEST—SCORES BY AGE AND SEX

Richmond.

Ages	10	11	12	13	14	15	16	17	18	19
Test I.										
Boys—white										
Av.	..	14.8	16.5	18.3	18.0	20.1	27.8	25.6	25.0	..
A.D.	..	6.6	7.3	8.7	7.3	10.0	5.9	8.1	4.0	..
Boys—Col.										
Av.	..	11.5	10.2	11.8	13.7	12.9	20.5	22.0	20.0	15.3
A.D.	..	3.8	4.4	5.0	6.5	6.9	8.4	8.5	8.4	7.6
Girls—white										
Av.	..	16.9	18.8	18.0	22.7	23.0	25.0	19.8	16.6	18.5
A.D.	..	6.0	4.2	7.4	8.3	8.6	7.4	6.2	3.8	.5
Girls—Col.										
Av.	10.0	12.4	10.6	12.4	14.5	18.6	21.1	26.0	18.4	22.6
A.D.	5.3	4.4	4.8	6.0	7.5	9.1	6.8	6.8	8.4	9.3
Test II.										
Boys—white										
Av.	..	16.5	19.5	21.3	24.1	22.0	33.0	34.6	29.6	..
A.D.	..	8.0	9.3	9.2	9.5	11.9	5,5	5.2	4.6	..
Boys—Col.										
Av.	..	12.6	11.6	13.7	16.3	19.2	25.7	32.0	32.1	31.2
A.D.	..	8.1	6.6	5.8	10.0	11.0	8.5	7.1	7.1	3.7
Girls—white										
Av.	..	22.0	22.4	21.5	24.7	28.6	31.7	27.8	23.0	18.5
A.D.	..	6.4	8.2	8.5	10.7	7.4	6.9	7.2	11.4	1.5
Girls—Col.										
Av.	14.0	17.2	10.6	11.8	16.4	22.1	27.9	31.9	22.7	24.0
A.D.	4.0	5.0	4.7	6.6	10.8	9.1	6.8	7.1	9.2	5.3

Fredericksburg.

Test I.										
Boys—white										
Av.	..	10.6	20.5	14.4	23.1	27.5	23.5	28.8	38.0	..
A.D.	..	4.0	12.5	6.4	10.7	9.4	13.1	8.5	2.0	..
Boys—Col.										
Av.	..	..	11.3	9.5	..	14.0	11.2	..	22.0	19.5
A.D.	..	..	1.6	3.5	..	5.3	2.6	..	0	8.5
Girls—white										
Av.	..	..	20.5	19.5	22.5	19.3	16.6	26.8	20.5	..
A.D.	..	..	11.1	6.1	11.1	14.0	8.0	9.6	10.5	..
Girls—Col.										
Av.	..	..	..	10.7	10.5	6.0	28.5	21.3	13.5	18.5
A.D.	..	..	..	4.7	1.9	4.0	8.5	8.9	6.5	7.5
Test II.										
Boys—white										
Av.	..	22.6	23.5	17.8	26.5	33.4	32.1	34.0	38.0	..
A.D.	..	6.6	15.2	10.8	12.5	7.5	6.5	6.8	1.3	..
Boys—Col.										
Av.	..	..	13.3	8.5	..	20.3	19.0	..	29.0	22.7
A.D.	..	..	5.0	.5	..	9.6	7.6	..	2.0	13.2
Girls—white										
Av.	..	..	25.8	19.1	29.0	22.6	24.8	32.2	28.0	..
A.D.	..	..	12.1	7.1	9.7	8.3	5.5	7.0	8.0	..
Girls—Col.										
Av.	..	..	..	13.3	11.0	16.0	35.0	27.6	23.0	21.0
A.D.	..	..	..	8.1	2.8	12.0	3.0	5.8	9.0	16.0

Newport News.

Ages	10	11	12	13	14	15	16	17	18	19
Test I.										
Boys—white										
Av.	..	27.6	16.4	20.9	18.9	15.2	..	..	..	..
A.D.	..	3.3	6.4	8.3	5.3	4.7	..	..	..	..
Boys—Col.										
Av.	..	..	13.5	..	7.0	..	..	..	..	..
A.D.	..	..	9.5	..	1.0	..	..	..	..	..
Girls—white										
Av.	..	19.6	23.1	18.7	16.3	10.7	24.5	..	..	..
A.D.	..	4.6	6.6	7.3	7.1	4.7	1.5	..	..	..
Girls—Col.										
Av.	..	..	7.7	7.0	6.0	2.0	8.6	..	..	..
A.D.	..	..	4.1	1.0	1.8	0	6.6	..	..	..
Test II.										
Boys—white										
Av.	..	33.6	24.4	24.7	20.8	21.0	..	..	..	..
A.D.	..	3.3	7.1	9.4	8.3	5.2	..	..	..	..
Boys—Col.										
Av.	..	..	21.5	..	7.0	..	..	..	..	..
A.D.	..	..	15.5	..	1.0	..	..	..	..	..
Girls—white										
Av.	..	30.4	30.9	23.9	22.0	12.5	31.0	..	..	..
A.D.	..	2.4	5.6	7.8	10.2	10.0	3.0	..	..	..
Girls—Col.										
Av.	..	..	9.4	4.2	6.8	4.6	4.0	..	..	..
A.D.	..	..	3.0	2.6	2.4	3.3	1.3	..	..	..

TABLE VI.

MIXED RELATIONS TEST—SCORES BY GRADES

Richmond.

Grades	5A	5B	6A	6B	7A	7B	1A	2A	2B	3A	4A
Test I.											
White Av.	13.1	13.9	16.8	16.8	18.4	24.9	25.5	28.0	..	23.1	23.3
A.D.	6.5	4.0	4.6	6.2	5.8	6.9	7.3	6.8	..	7.2	8.6
Col. Av.	8.9	10.3	13.0	13.4	9.7	12.2	21.4	20.7	17.7	29.4	22.6
A.D.	3.5	3.1	5.9	5.2	5.1	6.3	6.8	7.7	6.1	4.4	9.3
Test II.											
White Av.	14.8	18.0	19.8	22.6	21.8	29.4	29.0	33.6	..	31.8	30.2
A.D.	7.0	6.2	9.2	7.5	9.1	8.5	7.9	5.2	..	6.9	7.8
Col. Av.	9.7	10.3	14.0	13.9	16.5	11.8	27.1	28.1	24.0	35.4	29.6
A.D.	4.8	5.6	6.7	7.1	8.2	6.6	8.5	6.9	8.0	2.6	8.2

Fredericksburg.

Test I.											
White Av.	..	..	16.2	..	18.5	..	23.1	22.6	..	26.3	30.8
A.D.	..	..	8.1	..	10.0	..	9.8	12.8	..	9.8	7.1
Col. Av.	..	..	10.7	..	8.2	..	13.6	16.2	..	22.5	24.2
A.D.	..	..	2.7	..	4.5	..	4.8	6.2	..	9.8	6.2
Test II.											
White Av.	..	..	19.1	..	22.0	..	32.5	27.8	..	32.9	34.3
A.D.	..	..	10.1	..	11.0	..	6.7	8.8	..	5.2	6.9
Col. Av.	..	..	10.6	..	11.1	..	20.6	23.5	..	30.3	30.1
A.D.	..	..	3.8	..	4.7	..	9.0	6.1	..	7.8	7.1

Newport News.

Test I.											
White Av.	..	..	..	15.7	22.5	20.6	..	..	..	..	..
A.D.	..	..	..	6.8	6.1	7.3	..	..	..	..	..
Col. Av.	..	..	7.8	..	7.4	..	..	..	..	..	..
A.D.	..	..	3.5	..	3.6	..	..	..	..	..	..
Test II.											
White Av.	..	..	..	23.2	24.9	25.5	..	..	..	..	..
A.D.	..	..	..	9.1	8.2	8.6	..	..	..	..	..
Col. Av.	..	..	8.5	..	7.1	..	..	..	..	..	..
A.D.	..	..	4.3	..	3.8	..	..	..	..	..	..

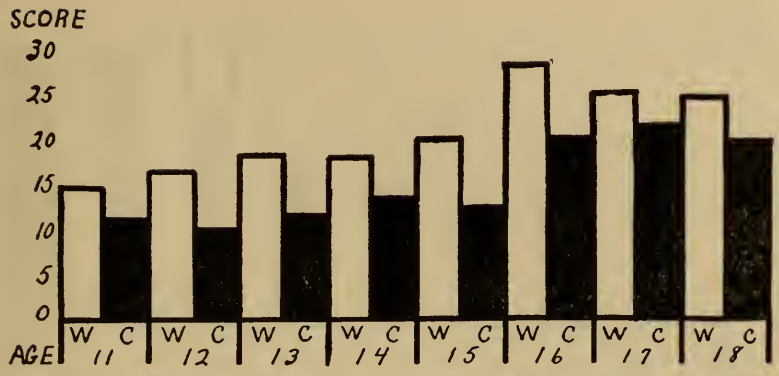

Fig. 1. Mixed Relations Test I—Scores of White and Colored Boys—Richmond.*

*The white and the black columns indicate the scores of the white and the colored subjects, respectively.

Fig. 2. Mixed Relations Test I—Scores of White and Colored Girls—Richmond.

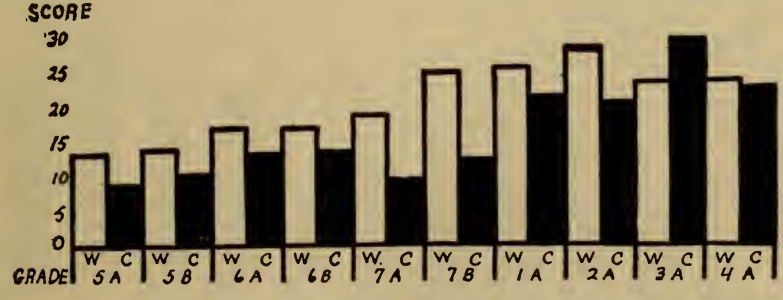

Fig. 3. Mixed Relations Test I—Scores of White and Colored Grades—Richmond.

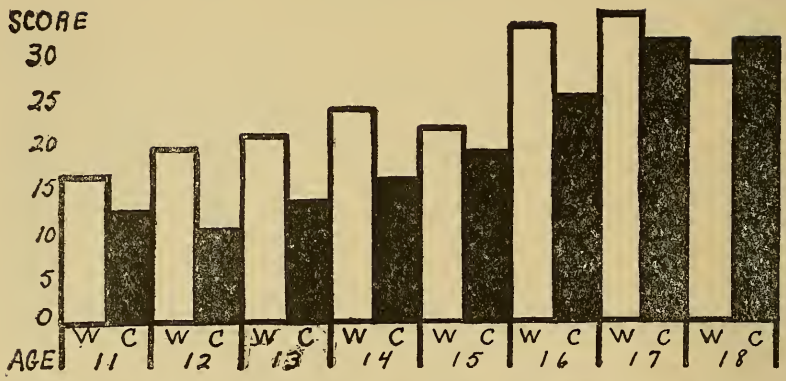

Fig. 4. Mixed Relations Test II—Scores of White and Colored Boys—Richmond.

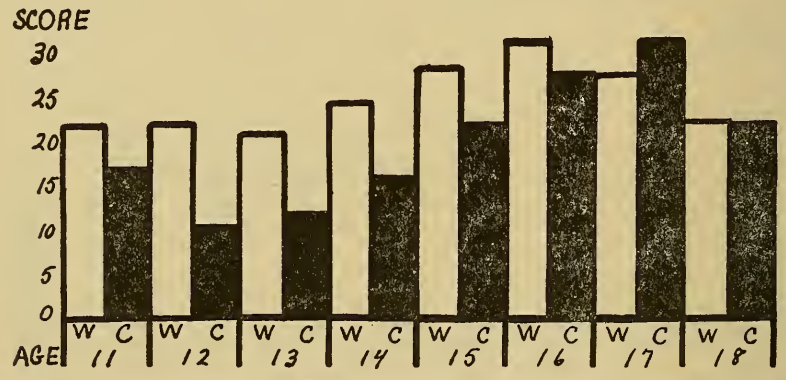

Fig. 5. Mixed Relations Test II—Scores of White and Colored Girls—Richmond.

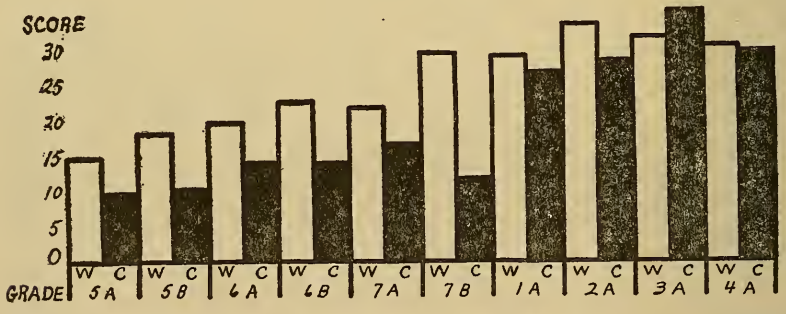

Fig. 6. Mixed Relations Test II—Scores of White and Colored Grades—Richmond.

It is interesting to note that the gradual increase in the scores as the age of the subjects increases comes to a standstill in the upper years; indeed, the graphs show that the older pupils as a whole have somewhat lower scores than those immediately below them in age. This is to be expected. In a group of pupils taken from any limited number of school grades, those whose ages are highest will not do as well in tests of ability as their ages would seem to warrant. When the elementary school pupils alone are classified by age their scores do not progressively increase, but instead tend to decrease in the upper years as do those of the high school pupils represented in the graphs. The white elementary pupils tested in Richmond ranged, in numbers large enough for comparison, from 11 to 15 years of age, inclusive. And their scores for each age were as follows: Mixed Relations Test I—Boys, 14.8, 15.0, 17.3, 16.0, 13.7; Girls, 16.9, 18.8, 17.0, 17.2, 15.2. Mixed Relations Test II—Boys, 16.5, 18.0, 20.6, 22.1, 15.0; Girls, 22.0, 22.1, 21.0, 17.4, 16.7. The scores for the different ages of colored elementary pupils behaved in the same way. It is thus evident that there is precisely the same sort of decrease in the scores of the higher ages that was found for the high school pupils.

The explanation of this decrease with age is probably to be sought in the bearings of the general fact that within any school grade the younger pupils have greater natural ability than the older. If the older pupils had had great ability, they would have passed out of the grade; that the younger pupils are so advanced as to be classed with the older pupils is evidence of their considerable capacity. The younger pupils in a shorter length of time have done the same amount of work that the older pupils have done in a greater length of time. A grade contains the best of the young and the worst of the old. So when the pupils in the upper grades of the elementary school are classified by age, it is apparent that the older pupils will be those of less native ability and the younger pupils will be those of greater native ability. The younger pupils in the upper elementary grades are the best of their age; the older pupils are the poorest of their age. The poor and mediocre pupils of the same age as the younger group have not yet reached the higher grades of the elementary school; the able pupils of the same age as the older group have passed on into high school. The same

reasoning applies to the school system as a whole, including the high school as the highest grades. The older pupils in the upper grades of the high school have not as great natural ability as the younger pupils. The ablest pupils of the same age as the older group have finished the high school course, and left behind only the mediocre and the poor. But the younger group is composed of the brightest pupils of their age, for those of less ability have not yet reached the upper grades. That this explanation of the smaller scores made by the oldest pupils tested is pertinent, is further indicated by the fact that the graphs which give the scores by grades do not show the decrease for the advanced pupils as it is shown by the graphs which give the scores by ages. Grades are supposedly groups of an increasing degree of ability.

The truth of the view set forth above is still further borne out by an incidental comparison that came to light in the present investigation. In the elementary schools at Richmond were tested 30 white boys, 20 white girls, 24 colored boys and 38 colored girls, 112 in all, of ages 14 and 15, combined. In the high schools at Richmond were tested 18 white boys, 25 white girls, 10 colored boys and 31 colored girls, 84 in all, of ages 14 and 15, combined. It is true that there was a larger proportion of 14 than of 15 year old pupils in the elementary groups, and a larger proportion of 15 than of 14 year old pupils in the high school groups. But this is of no consequence, since the 14 year old elementary pupils are fully as able as those 15 years old, as was shown two paragraphs above; and since the same thing is true of 14 and 15 year old pupils in the high school, as will be shown three paragraphs below. So these groups may be considered as of the same age, one set being in the elementary school and one set in the high school. The scores obtained by them in three tests were as follows:

Mixed Relations Test I—White Boys, Elementary, 14.8, High School, 24.1; White Girls, Elementary, 16.2, High School, 27.7; Colored Boys, Elementary, 10.2, High School, 22.0; Colored Girls, Elementary, 8.9, High School, 23.9. Mixed Relations Test II—White Boys, Elementary, 18.5, High School, 28.6; White Girls, Elementary, 17.0, High School, 33.7; Colored Boys, Elementary, 12.3, High School, 31.8; Colored Girls, Elementary, 10.2, High School, 29.0. Completion Test—White Boys, Elementary, 18.4, High School, 28.6; White Girls, Ele-

mentary, 16.1, High School, 33.1; Colored Boys, Elementary, 12.6, High School, 23.5; Colored Girls, Elementary, 15.6, High School, 25.4. The maze and cancellation tests did not bring out marked differences anywhere, as will appear, and the differences revealed by them in this comparison of the elementary and high schools were not considerable.

These figures show that the white high school pupils obtained on the whole nearly twice the score that was reached by the elementary pupils of the same age; and that the colored high school pupils obtained on the whole more than twice the score that was received by the equally old elementary pupils. Thus is borne out the contention that the older pupils in the upper grades of the elementary school are the poorest of their age; the brightest of their age have passed beyond the elementary school. And it is reasonable to suppose that the same state of affairs exists in the upper high school grades. The able 18 year old students have gone out of the school and left behind their less able fellows. And these are inferior to pupils of normal high school ability at a lower age.

It follows as a corollary of the above, that the youngest pupils represented in the graphs have scores which are too high to be truly representative of their ages. The lowest ages in any limited number of grades contain only the brightest pupils of those ages; the mediocre and the dull have not yet reached the grades in question. While the highest ages score too low, the lowest ages score too high. So it appeared that the youngest and the oldest pupils in the elementary grades tested in Richmond stood close together in their scores, and this was probably on account of the undue superiority of the young as much as on account of the undue inferiority of the old. The same is true of the high school taken alone. Ages 14 to 18, inclusive, were represented in the Richmond high schools in sufficient numbers for comparison. The scores received by the different ages of both white and colored pupils behaved in the same way; the scores of the white high school pupils follow: Mixed Relations Test I—Boys, 23.1, 25.2, 31.3, 25.6, 25.0; Girls, 30.3, 25.2, 25.6, 20.1, 16.6. Mixed Relations Test II—Boys, 29.0, 28.3, 36.8, 34.6, 29.6; Girls, 35.4, 32.0, 32.5, 28.0, 23.0. As in the case of the elementary school, the oldest and the youngest high school pupils do not stand far apart in their scores. And as the older pupils scored too low, so the younger pupils scored too high. This is evidenced by

the fact that when all of the pupils of their age, both elementary and high school, are considered together, the resulting score, which is the true one, is much lower. Of course it is the combined score of both high school and elementary pupils of the same age that is represented in the tables and graphs.

This suggests a matter to which attention should be called. The attempt is sometimes made to establish norms for various ages of pupils in psychological tests. The idea is to ascertain by a large number of experiments the performance that may be expected from a child of a certain age. But it is very evident that such attempts can only serve to mislead if they deal, say, with pupils in the higher elementary grades without taking the high school into consideration, or if they deal with the lower grades of the high school without taking the elementary school into consideration. In the former case, the resulting norms for the higher ages will be much too low; in the latter case, for the same ages, they will be much too high. A fourteen or fifteen year old child in the school system is not a typical fourteen or fifteen year old child. He is typical of a child of his age in high or in elementary school, and not in general. The only way in which valid age norms may be established is by testing the ages throughout their normal distributions among the grades. Or if only one school is tested, the elementary or the high school, it should at least be stated that such is the case, so that one may be able to make proper allowances for the findings reported. Even this has not always been done.

Attention may also be called to the bearing of the comparatives scores of the elementary and high school pupils of the same age upon a contention that was made in the preceding chapter. These scores show that the high school pupils are superior to the elementary school pupils of equal age to a considerably greater extent in the case of the negroes than of the whites. The high school negroes more than doubled the score of the elementary school negroes in each of the four comparisons in the mixed relations test, but the high school whites did not double the score of the elementary whites in any of the four comparisons; in the completion test, the high school doubled the score of the elementary school only in the case of the white girls. This fits in with the other indications that the colored high school is a more closely selected group from the point of view of ability than is the white high school.

TABLE VII.

MIXED RELATIONS TEST—DIFFERENCE BETWEEN SCORES OF WHITE AND COLORED SUBJECTS CLASSIFIED BY AGE AND SEX

(Minus signs indicate greater scores by the colored subjects.)

Richmond.

Ages	11	12	13	14	15	16	17	18	Av.	P.E.
Test I.										
Boys	3.3	6.3	6.5	4.3	7.2	7.3	3.6	5.0	5.4	.4
Girls	4.5	8.2	5.6	8.2	4.4	3.9	—6.2	—1.8	3.3	1.1
Test II.										
Boys	3.9	7.9	7.6	7.8	2.8	7.3	2.6	—2.5	4.7	.9
Girls	4.8	11.8	9.7	8.3	6.5	3.8	—4.1	.3	5.1	1.2

Fredericksburg.

Test I.										
Boys	..	..	4.9	..	13.5	12.3	..	16.0	11.7	1.4
Girls	..	..	8.8	12.0	13.3	—11.9	5.5	7.0	5.8	2.1
Test II.										
Boys	..	..	9.3	..	13.1	13.1	..	9.0	11.1	.8
Girls	..	..	5.8	18.0	6.6	—10.2	4.6	5.0	4.9	1.8

Newport News.

Test I.										
Boys	..	2.9	..	11.9	..	..	..	..	7.4	2.7
Girls	..	15.4	11.7	10.3	8.7	..	..	..	11.5	.8
Test II.										
Boys	..	2.9	..	13.8	..	..	..	..	8.3	3.2
Girls	..	21.5	19.7	15.2	7.9	..	..	..	16.1	1.9

TABLE VIII.

MIXED RELATIONS TEST—DIFFERENCE BETWEEN SCORES OF WHITE AND COLORED SUBJECTS CLASSIFIED BY GRADES

(Minus signs indicate greater scores by the colored subjects.)

Richmond.

Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E.
Test I.	4.2	3.6	3.8	3.4	8.7	12.7	4.1	7.3	—6.3	.7	4.2	.8
Test II.	5.1	7.7	5.8	8.7	5.3	17.6	1.9	5.5	—3.6	.6	5.5	.9

Fredericksburg.

Test I.	..	..	5.5	..	10.3	..	9.5	6.4	3.8	6.6	7.0	.7
Test II.	..	..	8.5	..	10.9	..	11.9	4.3	2.6	4.2	7.1	1.6

Newport News.

Test I.	..	..	..	..	15.1	..	..	..	..	..	15.1	..
Test II.	..	..	..	..	17.8	..	..	..	..	..	17.8	..

TABLE IX.

MIXED RELATIONS TEST—PERCENTAGE OF THE SCORE OF THE WHITE OBTAINED BY THE COLORED SUBJECTS, CLASSIFIED BY AGE AND SEX

Richmond.

Ages	11	12	13	14	15	16	17	18	Av.	P.E.
Test I.										
Boys	78	61	64	76	64	74	86	80	72.9	2.2
Girls	74	57	69	64	81	84	131	111	83.9	5.7
Test II.										
Boys	76	58	64	67	87	78	93	108	78.9	3.9
Girls	78	46	54	67	78	88	115	99	78.1	5.1

Fredericksburg.

Test I.										
Boys	..	..	65	..	50	47	..	58	55.0	2.7
Girls	..	..	54	45	30	170	80	65	74.0	11.9
Test II.										
Boys	..	..	48	..	60	59	..	76	60.7	3.2
Girls	..	..	69	38	71	141	86	82	81.2	7.7

	Newport News.								
Test I.									
Boys	..	82	..	37	..	..	..	..	59.5	13.2
Girls	..	33	38	36	21	..	..	..	32.0	2.3
Test II.									
Boys	..	88	..	34	..	..	..	..	61.0	16.2
Girls	..	31	18	31	34	..	..	..	28.5	2.3

TABLE X.

MIXED RELATIONS TEST—PERCENTAGE OF THE SCORE OF THE WHITE OBTAINED BY THE COLORED SUBJECTS, CLASSIFIED BY GRADES

	Richmond.											
Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E.
Test I..	68	74	78	80	52	49	84	74	127	97	78.3	3.9
Test II.	66	57	71	62	76	39	93	84	111	98	75.7	4.4
	Fredericksburg.											
Test I..	..	..	66	..	43	..	59	72	85	79	67.3	3.8
Test II.	..	..	55	..	50	..	63	85	92	88	72.2	5.6
	Newport News.											
Test I..	..	..	..	..	31	..	..	..	..	..	31.0	..
Test II.	..	..	..	..	29	..	..	..	..	..	29.0	..

TABLE XI.

MIXED RELATIONS TEST—PERCENTAGE OF COLORED SUBJECTS REACHING OR EXCEEDING THE AVERAGE OF THE WHITE, BY AGE AND SEX AND BY GRADES

	Richmond.											
Ages	11	12	13	14	15	16	17	18			Av.	P.E.
Test I.												
Boys	33	14	21	37	15	25	33	17	..	..	24.4	2.2
Girls	22	11	26	21	32	33	78	53	..	..	34.5	4.5
Test II.												
Boys	33	15	16	28	47	21	56	67	..	..	35.4	4.8
Girls	25	10	15	29	37	42	74	53	..	..	35.6	4.8

Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A		
Test I....	21	20	37	22	13	11	34	29	87	56	33.0	4.2
Test II...	18	19	24	18	32	0	62	26	88	52	33.9	5.2

To return to the comparative scores of negroes and whites in the mixed relations test. Tables 7-11 give the detailed comparisons. In every instance, as shown by the averages, the whites surpassed the negroes, and the probable errors are so small as to render the averages very reliable. In Test I, in Richmond, the colored boys obtained 72.9 per cent. of the score of the white boys; the colored girls obtained 83.9 per cent. of the score of the white girls; the colored grades obtained 78.3 per cent. of the score of the white grades. In Test II, the colored boys and girls obtained 78.9 and 78.1 per cent., respectively, of the score of the white boys and girls, and the colored grades scored 75.7 per cent. as high as did the white grades. The figures are very constant. We may conveniently

average the percentages for boys, girls and grades, and find that in Test I the colored pupils obtained 78.4 per cent. of the score of the whites, and that in Test II they obtained 77.6 per cent. of the white score. In Fredericksburg and Newport News the percentage of the score of the whites obtained by the negroes was considerably smaller than in Richmond.

The figures showing the percentage of Richmond negroes reaching or exceeding the average of the whites are as follows: Test I—Boys, 24.4; Girls, 34.5; Grades, 33.0. Test II—Boys, 35.4; Girls, 35.6; Grades, 33.9. Averaging the percentages for boys, girls and grades, we find that in Test I 30.6 per cent. of the negroes reached or exceeded the white score, and that in Test II 35.0 per cent. of them reached or exceeded the score of the whites.

It is apparent that this test reveals a considerable difference between the two races. In both the first and second tests the difference is about equally marked, and it is approximately the same for both boys and girls and for both ages and grades.

Completion Test

The actual scores in the Completion Test appear in Tables 12 and 13, classified by age and sex and by grades. These tables are the basis of Figures 7-9, and of Tables 14-18, in which the detailed comparisons are made. In this test, as in the mixed relations, though to a less degree, may be noted the relative superiority of the higher colored grades, and the fact that the higher ages, on the whole, do not show progressively increasing scores as do the lower ages.

TABLE XII.

COMPLETION TEST—SCORES BY AGE AND SEX

Richmond.

Ages	10	11	12	13	14	15	16	17	18	19
Boys—white										
Av.	..	15.3	18.7	18.7	21.2	23.4	30.7	30.7	25.2	..
A.D.	..	4.3	7.2	6.9	8.2	6.4	7.4	6.9	5.8	..
Boys—Col.										
Av.	..	8.8	13.2	13.6	15.8	16.1	21.2	28.1	31.3	27.2
A.D.	..	1.8	2.2	4.8	6.1	8.6	7.8	7.6	5.6	5.2
Girls—white										
Av.	..	18.9	20.9	17.0	25.3	27.7	28.9	30.0	33.2	33.5
A.D.	..	4.3	5.7	5.0	8.5	8.3	7.8	8.0	3.0	.5
Girls—Col.										
Av.	13.6	16.8	13.9	14.5	17.9	22.0	24.0	28.1	23.9	28.6
A.D.	4.6	3.1	3.0	3.7	6.3	5.2	5.0	6.3	3.8	.6

Fredericksburg.

Ages	10	11	12	13	14	15	16	17	18	19
Boys—white										
Av.	..	24.6	12.0	19.1	23.0	23.7	33.0	31.5	43.3	..
A.D.	..	8.0	4.0	7.2	10.0	9.0	6.0	5.5	3.0	..
Boys—Col.										
Av.	..	..	15.6	10.0	..	22.0	17.2	..	26.5	24.5
A.D.	..	..	3.3	3.0	..	10.0	5.4	..	2.5	6.5
Girls—white										
Av.	..	..	24.4	16.5	25.5	22.5	28.8	39.2	35.0	..
A.D.	..	..	6.0	6.1	6.0	4.1	7.1	5.8	0.	..
Girls—Col.										
Av.	..	..	..	15.3	15.0	22.6	25.0	24.2	11.0	28.0
A.D.	..	..	..	4.5	3.2	4.6	8.0	8.0	4.0	13.0

Newport News.

Boys—white										
Av.	..	25.3	23.2	24.7	20.4	14.8	..	..	..	..
A.D.	..	2.3	5.6	6.8	5.3	3.2	..	..	..	..
Boys—Col.										
Av.	..	..	16.5	..	14.7	..	..	..	..	..
A.D.	..	..	2.5	..	2.7	..	..	..	..	..
Girls—white										
Av.	..	30.8	23.0	21.8	21.0	21.5	22.0	..	..	..
A.D.	..	4.8	5.2	5.2	5.4	3.5	5.0	..	..	..
Girls—Col.										
Av.	..	..	13.5	13.1	12.5	8.6	9.0	..	..	..
A.D.	..	..	5.7	2.5	4.4	2.0	5.3	..	..	..

TABLE XIII.

COMPLETION TEST—SCORES BY GRADES

Richmond.

Grades	5A	5B	6A	6B	7A	7B	1A	2A	2B	3A	4A
White Av.	13.3	15.1	17.6	22.5	19.4	25.6	27.0	30.5	..	31.2	34.5
A.D.	4.6	4.7	4.6	3.8	5.2	6.8	7.1	6.7	..	5.9	6.0
Col. Av.	11.3	13.2	14.2	16.5	16.1	15.7	21.8	27.2	23.4	28.4	29.4
A.D.	3.5	2.6	4.1	4.0	4.3	4.4	6.3	6.3	4.5	4.8	5.6

Fredericksburg.

White Av.	..	..	17.5	..	21.3	..	26.7	26.5	..	36.0	36.1
A.D.	..	..	7.0	..	6.0	..	7.8	6.4	..	5.1	6.0
Col. Av.	..	..	13.0	..	19.2	..	18.4	20.7	..	24.2	30.1
A.D.	..	..	3.5	..	4.8	..	3.5	5.0	..	9.7	6.6

Newport News.

White Av.	..	..	..	21.9	21.9	23.7	..	..	..	..	..
A.D.	..	..	..	7.5	5.0	6.5	..	..	..	..	..
Col. Av.	..	..	12.6	..	13.3	..	..	..	..	..	..
A.D.	..	..	3.8	..	4.8	..	..	..	..	..	..

The colored boys in Richmond obtained 78.5 per cent. of the score of the white boys. The colored girls obtained 80.0 per cent. of the score of the white girls. And the colored grades obtained 81.7 per cent. of the score of the white grades. The average for boys, girls and grades is 80.1. In Fredericksburg and Newport News the negroes are more inferior to the whites than in Richmond, as was the case in the mixed relations test. And the difference between the races is about the same for both boys and girls and for both ages and grades.

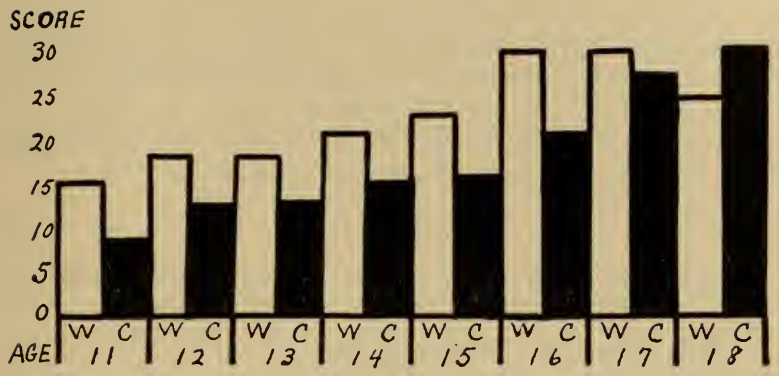

Fig. 7. Completion Test—Scores of White and Colored Boys—Richmond.

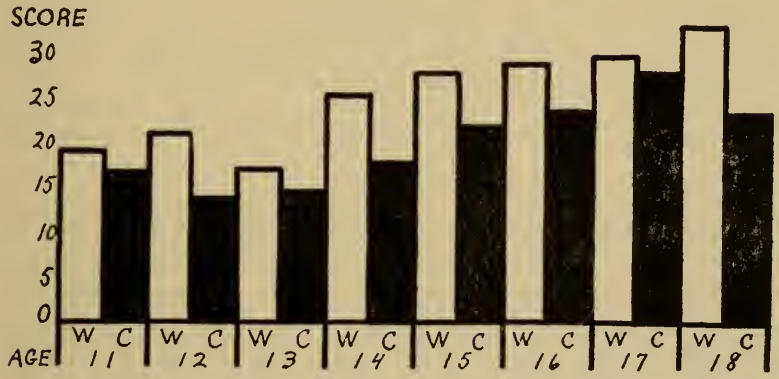

Fig. 8. Completion Test.—Scores of White and Colored Girls—Richmond.

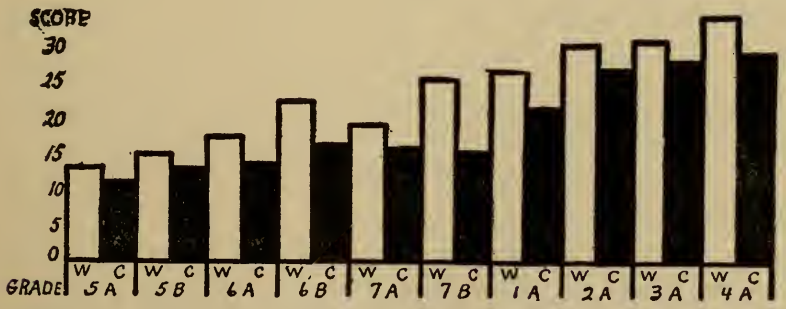

Fig. 9. Completion Test—Scores of White and Colored Grades—Richmond.

In Richmond the percentage of colored boys reaching or exceeding the average of the whites was 32.5. The percentage of colored girls reaching or exceeding the average of the whites was 24.7. By grades, the percentage of colored subjects reaching or exceeding the average of the whites was 26.5. The average for boys, girls and grades is 27.9.

TABLE XIV.

COMPLETION TEST—DIFFERENCE BETWEEN SCORES OF WHITE AND COLORED SUBJECTS CLASSIFIED BY AGE AND SEX

(Minus signs indicate greater scores by the colored subjects.)

Ages	11	12	13	14	15	16	17	18	Av.	P.E.
Richmond.										
Boys	6.5	5.5	5.1	5.4	7.3	9.5	2.6	—6.1	4.5	.9
Girls	2.1	7.0	2.5	7.4	5.7	4.9	1.9	9.3	5.1	.7
Fredericksburg.										
Boys	..	..	9.1	..	1.7	15.8	..	16.8	10.8	2.3
Girls	..	..	1.2	10.5	— .1	3.8	15.0	24.0	9.1	2.6
Newport News.										
Boys	..	6.7	..	5.7	..	..	..	..	6.2	.3
Girls	..	9.5	8.7	8.5	12.9	..	..	..	9.9	.3

TABLE XV.

COMPLETION TEST—DIFFERENCE BETWEEN SCORES OF WHITE AND COLORED SUBJECTS CLASSIFIED BY GRADES

(Minus signs indicate greater scores by the colored subjects.)

Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E.
Richmond.												
	2.0	1.9	3.4	6.0	3.3	9.9	5.2	3.3	2.8	5.1	4.3	.5
Fredericksburg.												
	..	..	4.5	..	2.1	..	8.3	5.8	11.8	6.0	6.4	.8
Newport News.												
	..	..	..	..	8.6	..	..	..	..	..	8.6	..

TABLE XVI.

COMPLETION TEST—PERCENTAGE OF THE SCORE OF THE WHITE OBTAINED BY THE COLORED SUBJECTS, CLASSIFIED BY AGE AND SEX

Ages	11	12	13	14	15	16	17	18	Av.	P.E.
Richmond.										
Boys	57	71	73	74	68	69	92	124	78.5	4.2
Girls	89	67	85	70	80	83	94	72	80.0	2.3
Fredericksburg.										
Boys	..	..	52	..	93	52	..	61	64.5	5.9
Girls	..	..	92	58	100	87	62	31	71.7	7.3
Newport News.										
Boys	..	71	..	71	..	..	..	..	71.0	.0
Girls	..	59	60	60	39	..	..	..	54.5	3.4

TABLE XVII.

COMPLETION TEST—PERCENTAGE OF THE SCORE OF THE WHITE OBTAINED BY THE COLORED SUBJECTS, CLASSIFIED BY GRADES

					Richmond.							
Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E.
	85	87	81	73	83	62	81	89	91	85	81.7	1.5
					Fredericksburg.							
	..	..	74	..	90	..	69	78	67	83	76.8	2.3
					Newport News.							
	..	..	..	..	61	..	..	..	..	..	61.0	..

TABLE XVIII.

COMPLETION TEST—PERCENTAGE OF COLORED SUBJECTS REACHING OR EXCEEDING THE AVERAGE OF THE WHITE, BY AGE AND SEX AND BY GRADES

					Richmond.							
Ages	11	12	13	14	15	16	17	18			Av.	P.E.
Boys	0	14	26	35	25	21	56	83	..	..	32.5	5.7
Girls	33	9	41	17	19	24	48	7	..	..	24.7	3.6
Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A		
	33	34	20	15	32	0	26	29	48	28	26.5	2.3

The racial differences are very similar in all respects to those brought out by the mixed relations test. They are equally constant in the two tests, the small probable errors render them equally valid, and they are of approximately equal amounts. This was to be expected, since the two tests deal in general with the same mental traits, and the results from the two serve to reinforce and establish the validity of each other. The results from the two tests and the three cities and in the various modes of comparison make it indubitable that in the important mental capacities measured whites are much superior to negroes.

Just how much the whites are superior in the traits measured it is impossible to say. For we do not know the zero point of the tests. Averaging the results from the mixed relations tests, I and II, and from the completion test, we find that in the tests themselves the negroes did 78.7 per cent. as well as the whites. But we cannot say more than this. We cannot say that the negroes have 78.7 per cent. of the ability of the whites, for we have no index of where the ability in question begins.

Maze Test

The scores for the maze test are set forth in Tables 19 and 20. These tables, so far as they concern Richmond, are made plainer by Figures 10-12. An examination of these figures shows that in every age for each sex, and in every grade except one, the whites covered a greater distance and made more touches than did the negroes. This seems to be a racial difference for the subjects tested. It appears in the Fredericksburg results as well as in those of Richmond. The negroes were more careful than the whites. The significance of this is difficult to tell. And it becomes especially difficult when it is considered in connection with the fact, which will appear, that the negroes were not more careful in the cancellation test.

TABLE XIX.

MAZE TEST—SCORES BY AGE AND SEX

Richmond.

Ages	10	11	12	13	14	15	16	17	18	19
Boys—white										
Touches Av.	..	39.7	48.6	48.2	45.5	57.2	63.3	..	..	..
A.D.	..	20.2	19.6	27.8	26.1	19.5	25.0	..	..	..
Distance Av.	..	94.4	103.2	99.7	99.4	113.8	123.0	..	..	..
A.D.	..	20.2	23.8	27.3	22.6	20.6	22.6	..	..	..
Boys—Col.										
Touches Av.	..	34.4	35.5	31.6	33.7	28.1	14.5	30.0	43.8	16.7
A.D.	..	14.8	23.0	19.7	21.8	22.5	7.7	24.2	31.5	11.7
Distance Av.	..	88.6	90.1	84.4	93.8	83.0	83.2	91.1	104.5	76.0
A.D.	..	12.6	23.9	22.6	28.0	20.2	9.0	23.0	21.5	30.0
Girls—white										
Touches Av.	..	54.0	60.0	41.0	44.3	59.6	..	..	..	..
A.D.	..	16.3	22.6	18.0	26.4	13.3	..	..	..	..
Distance Av.	..	113.7	117.0	110.8	103.8	119.3	..	..	..	..
A.D.	..	13.0	22.0	20.4	25.3	13.7	..	..	..	..
Girls—Col.										
Touches Av.	34.6	21.0	27.2	28.9	35.8	39.0	35.0	21.5	19.2	16.6
A.D.	16.0	15.2	15.9	19.4	22.7	25.4	25.3	16.7	10.5	10.0
Distance Av.	93.6	80.1	84.8	86.2	97.3	101.4	99.0	89.9	86.0	70.6
A.D.	6.0	27.1	23.7	22.9	24.3	17.5	25.5	18.9	17.5	20.6

Fredericksburg.

Boys—white										
Touches Av.	..	..	..	..	32.4	30.7	17.0	25.3	38.5	..
A.D.	..	..	..	..	21.0	7.2	9.0	15.3	8.3	..
Distance Av.	..	..	..	..	111.2	112.7	88.6	107.0	111.0	..
A.D.	..	..	..	..	19.1	20.2	12.6	23.6	9.3	..
Boys—Col.										
Touches Av.	..	..	26.6	22.5	..	36.6	41.0	..	14.0	34.0
A.D.	..	..	12.6	19.5	..	6.6	36.8	..	6.0	24.5
Distance Av.	..	..	76.3	70.0	..	95.0	80.8	..	69.5	97.5
A.D.	..	..	13.6	26.0	..	14.6	34.0	..	2.5	32.5
Girls—white										
Touches Av.	..	..	..	..	13.6	24.2	11.0	17.6	8.0	..
A.D.	..	..	..	..	4.6	15.2	8.0	9.4	4.0	..

Ages	10	11	12	13	14	15	16	17	18	19
Distance Av.	..	..	..	..	84.6	94.0	85.0	97.4	68.0	..
A.D.	..	..	..	..	7.3	13.5	20.3	5.6	1.0	..
Girls—Col.										
Touches Av.	..	..	..	13.0	11.3	6.3	25.5	10.3	22.0	54.5
A.D.	..	..	..	9.5	6.7	4.3	6.5	7.7	10.0	44.5
Distance Av.	..	..	..	68.7	58.5	58.6	76.0	65.8	84.0	99.5
A.D.	..	..	..	21.2	14.3	14.0	3.0	8.8	0	40.0
Newport News.										
Boys—Col.										
Touches Av.	..	..	5.0	..	9.5	..	..	..	..	..
A.D.	..	..	3.0	..	3.0	..	..	..	..	..
Distance Av.	..	..	56.5	..	63.5	..	..	..	..	..
A.D.	..	..	7.5	..	11.0	..	..	..	..	..
Girls—Col.										
Touches Av.	..	..	17.4	10.6	7.0	6.0	10.3	..	..	..
A.D.	..	..	20.7	6.6	7.2	4.0	5.0	..	..	..
Distance Av.	..	..	72.2	54.0	59.2	59.3	61.6	..	..	..
A.D.	..	..	23.7	16.0	15.8	6.3	14.0	..	..	..

TABLE XX.

Maze Test—Scores by Grades

Grades	5A	5B	6A	6B	7A	7B	1A	2A	2B	3A	4A
Richmond.											
White											
Touches Av.	53.6	46.9	41.7	38.6	40.2	61.1	..	..	..	..	..
A.D.	22.5	23.4	23.1	22.0	24.8	17.7	..	..	..	..	..
Distance Av.	106.5	106.6	95.5	97.0	103.0	123.7	..	..	..	..	..
A.D.	21.3	24.0	25.3	23.2	22.9	13.7	..	..	..	..	..
Colored											
Touches Av.	38.3	26.0	21.7	18.6	46.1	46.7	31.2	34.3	33.9	20.5	16.8
A.D.	20.6	18.3	13.4	14.7	15.9	26.9	21.3	24.2	23.7	15.2	9.0
Distance Av.	100.4	85.3	70.7	69.5	111.7	103.3	94.6	98.7	101.0	84.2	81.8
A.D.	23.1	21.7	14.5	20.2	15.2	24.5	19.3	18.0	25.0	17.9	20.0
Fredericksburg.											
White											
Touches Av.	..	..	26.1	..	24.6	..	31.6	13.5	..	19.9	25.8
A.D.	..	..	16.5	..	15.7	..	17.7	8.4	..	11.0	15.3
Distance Av.	..	..	94.2	..	92.2	..	104.6	87.3	..	97.9	102.7
A.D.	..	..	24.4	..	20.4	..	22.3	13.0	..	16.7	17.8
Colored											
Touches Av.	..	..	19.2	..	16.5	..	10.5	21.8	..	24.5	31.7
A.D.	..	..	15.4	..	11.1	..	5.7	16.2	..	14.5	25.7
Distance Av.	..	..	67.1	..	72.1	..	61.2	83.0	..	78.3	90.7
A.D.	..	..	18.8	..	20.4	..	14.2	16.0	..	14.8	28.0
Newport News.											
Colored											
Touches Av.	..	..	13.1	..	6.8	..	..	..	..	..	..
A.D.	..	..	11.5	..	5.0	..	..	..	..	..	..
Distance Av.	..	..	67.5	..	55.6	..	..	..	..	..	..
A.D.	..	..	16.6	..	13.4	..	..	..	..	..	..

It is not apparent that there is any general increase or decrease in either the distance covered or the number of touches, or in the ratio between the two, as the age of the pupils advances. The difference in ages, indeed, may fairly be disregarded.

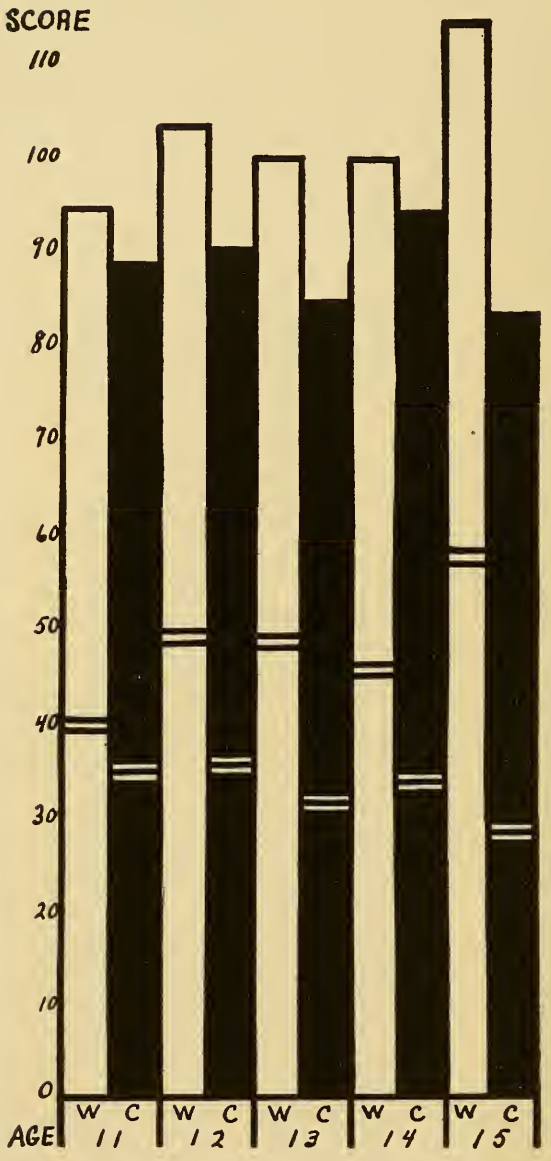

Fig. 10. Maze Test—Scores of White and Colored Boys—Richmond.*
*The total height of the columns indicates the score for distance; the height of the cross-lines indicates the score for touches.

Fig. 11. Maze Test—Scores of White and Colored Girls—Richmond.

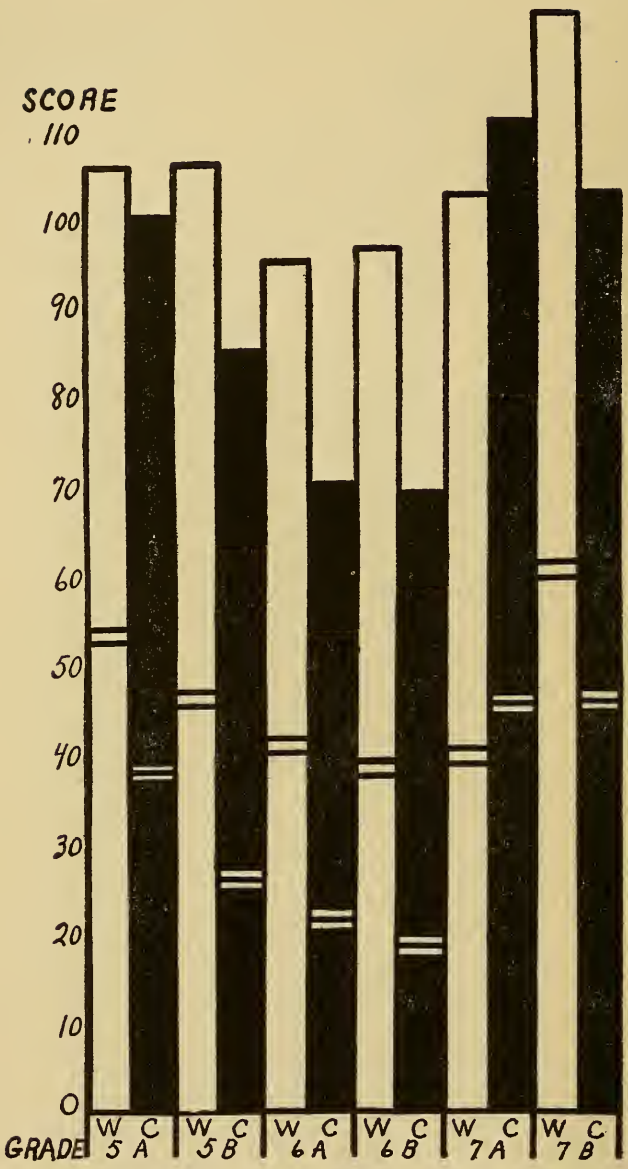

Fig. 12. Maze Test—Score of White and Colored Grades—Richmond.

When we attempt to decide which race was superior in this test we encounter the difficulty in evaluating speed and accuracy that was discussed in the preceding chapter. Tables 21-25 give the detailed comparisons for both speed and accuracy—distance and touches. The Fredericksburg comparisons, on the whole, are fairly sure, although the probable errors are large. The tables show that in Fredericksburg the colored subjects exceeded the white subjects in number of touches made, but were inferior to them in distance covered, and that this was true for both sexes and for the grades. The negroes attained less speed and were at the same time more inaccurate. Consequently they were inferior to the whites.

But in Richmond a conclusion cannot be drawn so readily. Here the colored subjects were slower, as in Fredericksburg, but, unlike those in Fredericksburg, they were also more accurate than the whites. The colored boys covered 86.6 per cent. of the distance covered by the white boys and made 69.6 per cent. as many touches. The colored girls scored 79.8 per cent. of the distance of the white girls and 60.2 per cent. as many touches as the white girls. The scores for the grades show that the colored pupils scored for distance and touches, respectively, 85.2 per cent. and 70.0 per cent. as high as did the white pupils. These figures are fairly uniform for the different classifications of the subjects, and their probable errors are sufficiently small for reliability. If we average the percentages given for boys, girls and grades, we find that the negroes covered 84 per cent. as great distance as the whites and made 67 per cent. as many errors.

TABLE XXI.

MAZE TEST—DIFFERENCE BETWEEN SCORES OF WHITE AND COLORED SUBJECTS CLASSIFIED BY AGE AND SEX

(Minus signs indicate greater scores by the colored subects.)

Ages	11	12	13	14	15	16	17	18	Av.	P.E.
Richmond.										
Boys										
Touches	5.3	13.1	16.6	11.8	29.1	..	..	..	**15.2**	2.3
Distance	5.8	13.1	15.3	5.6	30.8	..	..	..	**14.1**	2.7
Girls										
Touches	33.0	32.8	12.1	8.5	20.6	..	..	..	**21.4**	3.5
Distance	33.6	32.2	24.6	6.5	17.9	..	..	..	**23.0**	3.3
Fredericksburg.										
Boys										
Touches	..	..	..	..	—5.9	—24.0	..	24.5	—1.8	8.6
Distance	..	..	..	..	17.7	7.8	..	41.5	**22.3**	6.3
Girls										
Touches	..	..	..	2.3	17.9	—14.5	7.3	—14.0	—.2	4.3
Distance	..	..	..	26.1	35.4	9.0	31.6	—16.0	**17.2**	6.3

TABLE XXII.

MAZE TEST—DIFFERENCE BETWEEN SCORES OF WHITE AND COLORED SUBJECTS CLASSIFIED BY GRADES

(Minus signs indicate greater scores by the colored subjects.)

Richmond.

Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E
Touches	15.3	20.9	20.0	20.0	—5.9	14.4	..	..	..	..	**14.1**	**2.3**
Distance	6.1	21.3	24.8	27.5	—8.7	20.4	..	..	..	..	**15.2**	**3.8**

Fredericksburg.

Touches	..	..	6.9	..	8.1	..	21.1	—8.3	—4.6	—5.9	**2.9**	**3.2**
Distance	..	..	27.1	..	20.1	..	43.4	4.3	19.6	12.0	**21.1**	**3.3**

TABLE XXIII.

MAZE TEST—PERCENTAGE OF THE SCORE OF THE WHITE OBTAINED BY THE COLORED SUBJECTS, CLASSIFIED BY AGE AND SEX

Richmond.

Ages	11	12	13	14	15	16	17	18	Av.	P.E.
Boys										
Touches	87	73	65	74	49	..	..	..	**69.6**	**3.8**
Distance	94	87	85	94	73	..	..	..	**86.6**	**2.2**
Girls										
Touches	39	45	70	81	66	..	..	..	**60.2**	**5.7**
Distance	70	72	78	94	85	..	..	..	**79.8**	**2.9**

Fredericksburg.

Boys										
Touches	..	..	..	..	119	241	..	36	**132.0**	**36.1**
Distance	..	..	..	..	84	91	..	63	**79.3**	**5.4**
Girls										
Touches	..	..	..	84	25	232	59	275	**135.0**	**36.2**
Distance	..	..	..	89	62	89	67	124	**86.2**	**6.4**

TABLE XXIV.

MAZE TEST—PERCENTAGE OF THE SCORE OF THE WHITE OBTAINED BY THE COLORED SUBJECTS, CLASSIFIED BY GRADES

Richmond.

Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E.
Touches	72	56	52	49	115	76	..	..	..	..	**70.0**	**6.3**
Distance	94	80	74	72	108	83	..	..	..	..	**85.2**	**3.5**

Fredericksburg.

Touches	..	..	73	..	68	..	34	164	123	123	**97.5**	**13.5**
Distance	..	..	71	..	78	..	59	95	80	88	**78.5**	**3.2**

TABLE XXV.

MAZE TEST—PERCENTAGE OF COLORED SUBJECTS REACHING OR EXCEEDING THE AVERAGE OF THE WHITE, BY AGE AND SEX AND BY GRADES

Richmond.

Ages	11	12	13	14	15		Av.	P.E.
Boys								
Touches	40	20	22	29	14	..	**25.0**	**2.9**
Distance	40	30	39	35	14	..	**31.6**	**2.9**

Ages	11	12	13	14	15		Av.	P.E.
Girls								
Touches	0	10	35	30	22	..	19.4	4.5
Distance	25	20	29	41	19	..	26.8	2.5
Grades	5A	5B	6A	6B	7A	7B		
Touches	26	19	14	14	68	35	29.3	5.2
Distance	41	22	11	14	68	35	31.8	5.6

The percentages of colored subjects reaching or exceeding the average of the white show the same relative standing for the two races in touches and distance traversed as is evident from the preceding figures. These percentages are as follows: Boys—Touches, 25.0, Distance, 31.6; Girls—Touches, 19.4, Distance, 26.8; Grades—Touches, 29.3, Distance, 31.8. If we average the percentages for boys, girls and grades, as before, we find that 25 per cent. of the negroes reached the average of the whites in touches, and that 30 per cent. of them reached the average of the whites in distance.

Do these facts indicate that the colored subjects were superior, inferior or equal to the white? A reference to the graphs will make it evident that a large score for distance implies a relatively higher score for touches than does a small score for distance. The ratio of touches to distance becomes greater as distance increases. And this change in the ratio takes place with marked constancy throughout the graphs. It is normal for the smaller of two scores for distance to have a relatively smaller score for errors. The question to be settled in this comparison is whether a distance 84 per cent. as great as another distance normally implies 67 per cent. as many touches for the former distance as for the latter. If so, it is apparent that there is no difference between the ability of the white and the colored subjects in this test. And the following considerations indicate that such is the case.

Since the score of the negroes for distance is 84 per cent. of that of the whites, 100 may be taken to represent the actual distance score of the whites and 84 to represent the actual distance score of the negroes. Now a reference to the graphs shows that colored grades 5A and 7B, and colored girls aged 14 and 15, scored approximately 100 for distance. And the average number of touches made by these four groups of colored pupils was 40, the variation being slight. A further reference to the graphs shows that colored grade 5B, colored girls aged 11, 12 and 13, and colored boys aged 11, 13 and 15,

scored approximately 84 for distance. And the average number of touches made by these seven groups of colored pupils was 28, the variation again being slight. Here we have two sets of colored pupils scoring 100 and 84, respectively, for distance, and 40 and 28 for errors. Twenty-eight is 70 per cent. of 40, and 84 is 84 per cent. of 100. Thus we have the slower set of colored pupils attaining 84 per cent. as great distance as the faster set, and making 70 per cent. as many errors. But these are approximately the figures which represent the difference between the whites and the negroes. So it seems that we can confidently conclude that there is no racial difference in ability revealed by the maze test. Wherever the negroes work as rapidly as the whites, they make approximately the same number of errors.

The graphs show no records of white subjects with as small scores as 84 for distance, and we therefore cannot ascertain the actual number of errors made by whites who worked as slowly as the assumed average of the negroes. But there is no reason for believing there would have been any appreciable racial difference if slow white records had occurred. When we compare the white groups who attained a distance of 100, the assumed average of the whites, with the colored groups who worked rapidly enough to attain this distance, we find the number of errors made by the two groups to be about the same. White grades 6A, 6B and 7A, white girls aged 14, and white boys aged 12, 13 and 14, scored approximately 100 for distance. And the average number of errors of these seven groups, the variation being small, was 44. In the preceding paragraph it was pointed out that the four colored groups who worked at this speed scored an average of 40 errors. The difference between the two sets of pupils, white and colored, is thus inconsiderable.

Finally, the reader may be referred to the white and colored columns in the graphs themselves. An inspection shows that wherever the column for the whites approaches that for the negroes in total height, representing distance, the cross-lines on the two columns, representing errors, correspondingly approach equality. And within the colored columns themselves, as within the white columns, greater total height means not only an absolutely but a relatively greater height for the cross-lines.

On the whole, while the whites were superior to the negroes

in Fredericksburg in the motor ability tested, they were not superior in Richmond. Greater weight should be attached to the Richmond results on account of the larger number of subjects tested there.

Cancellation Test

The records for the cancellation test are set forth in Tables 26 and 27, and in Figures 13-15. A fairly regular increase in the scores with age may be noted.

TABLE XXVI.

CANCELLATION TEST—SCORES BY AGE AND SEX

Richmond.

Ages	10	11	12	13	14	15	16	17	18	19
Boys—white										
Omissions Av.	..	1.0	3.2	2.8	3.2	1.6	2.0	..	..	..
A.D.	..	1.0	2.2	2.4	2.3	1.1	.6	..	..	..
Cancellations Av.	..	50.3	62.7	57.7	59.1	62.7	65.3	..	..	..
A.D.	..	6.8	11.1	12.3	8.1	8.2	3.0	..	..	..
Boys—Col.										
Omissions Av.	..	4.5	1.7	2.0	2.6	5.1	2.5	2.0	2.0	4.5
A.D.	..	5.5	1.8	1.8	2.6	4.0	1.5	2.0	1.0	1.5
Cancellations Av.	..	43.6	58.6	52.6	66.2	68.6	74.4	69.8	93.8	93.7
A.D.	..	11.6	8.6	7.1	8.1	12.8	13.7	6.4	4.5	2.2
Girls—white										
Omissions Av.	..	.8	2.5	1.8	2.9	3.5	..	..	..	..
A.D.	..	.8	2.2	1.6	1.9	1.0	..	..	..	..
Cancellations Av.	..	53.0	61.4	63.0	71.2	64.5	..	..	..	..
A.D.	..	7.5	8.8	7.4	14.7	7.5	..	..	..	..
Girls—Col.										
Omissions Av.	2.0	1.6	3.3	3.0	2.7	3.4	2.9	1.8	3.4	0.
A.D.	2.0	1.7	2.3	2.6	1.8	2.9	2.6	1.4	2.1	0.
Cancellations Av.	60.3	59.4	65.3	69.7	74.4	81.2	84.9	89.8	87.0	87.6
A.D.	2.3	11.3	11.4	9.9	13.1	13.0	11.2	8.9	8.8	10.6

Fredericksburg.

Boys—white										
Omissions Av.	..	1.3	1.5	3.1	3.6	3.7	2.3	2.0	2.3	..
A.D.	..	1.0	1.5	1.8	2.4	3.8	2.3	2.0	1.6	..
Cancellations Av.	..	53.3	45.0	54.7	63.9	66.8	72.1	72.8	78.3	..
A.D.	..	5.0	3.0	6.7	11.4	10.2	17.0	16.5	7.0	..
Boys—Col.										
Omissions Av.	..	..	3.3	1.0	..	9.6	2.2	..	1.5	5.5
A.D.	..	..	1.6	0.	..	8.0	1.0	..	1.5	4.5
Cancellations Av.	..	..	58.6	55.5	..	70.6	76.2	..	90.0	81.2
A.D.	..	..	4.6	2.5	..	17.3	13.4	..	5.0	2.7
Girls—white										
Omissions Av.	..	..	1.5	1.5	2.2	3.3	1.8	1.0	4.0	..
A.D.	..	..	1.1	1.1	2.0	3.0	1.5	.8	4.0	..
Cancellations Av.	..	..	56.3	61.0	67.7	73.3	72.0	75.2	74.5	..
A.D.	..	..	8.0	10.3	13.2	6.3	13.0	12.6	4.5	..
Girls—Col.										
Omissions Av.	..	..	..	1.6	2.0	.6	5.5	3.2	2.0	2.5
A.D.	..	..	..	.6	1.8	.6	.5	2.0	0.	1.5
Cancellations Av.	..	..	..	68.8	63.9	66.0	94.5	84.7	81.5	70.5
A.D.	..	..	..	10.6	10.3	7.3	.5	9.7	16.5	25.5

Newport News.

Ages	10	11	12	13	14	15	16	17	18	19
Boys—white										
Omissions Av.	..	.3	1.5	1.5	1.6	4.0	..	..	..	..
A.D.	..	.3	.9	1.6	1.1	3.0	..	..	..	..
Cancellations Av.	..	67.0	53.4	59.8	63.1	56.7	..	..	..	..
A.D.	..	6.0	8.0	8.7	8.1	20.2	..	..	..	..
Boys—Col.										
Omissions Av.	..	..	0.	..	2.2	..	..	..	..	..
A.D.	..	..	0.	..	1.2	..	..	..	..	..
Cancellations Av.	..	..	49.0	..	69.5	..	..	..	..	..
A.D.	..	..	0.	..	7.0	..	..	..	..	..
Girls—white										
Omissions Av.	..	.4	2.6	2.4	2.8	3.7	2.0	..	..	..
A.D.	..	.4	2.6	2.4	2.1	2.7	2.0	..	..	..
Cancellations Av.	..	52.4	60.7	57.4	71.0	63.0	72.5	..	..	..
A.D.	..	6.0	9.8	11.3	11.7	9.5	15.5	..	..	..
Girls—Col.										
Omissions Av.	..	..	3.7	1.4	1.6	1.6	9.0	..	..	..
A.D.	..	..	3.0	.8	1.5	1.3	6.6	..	..	..
Cancellations Av.	..	..	63.4	57.4	62.6	56.3	80.3	..	..	..
A.D.	..	..	13.5	6.8	7.3	7.0	8.3	..	..	..

TABLE XXVII.

CANCELLATION TEST—SCORES BY GRADES

Richmond.

Grades	5A	5B	6A	6B	7A	7B	1A	2A	2B	3A	4A
White											
Omissions Av.	2.6	3.0	1.5	1.7	2.5	2.1	..	..	..	..	..
A.D.	1.8	2.9	1.1	1.5	2.1	1.4	..	..	..	..	..
Cancellations Av.	61.6	55.2	54.4	65.5	62.8	66.8	..	..	..	..	..
A.D.	9.9	7.4	11.0	12.6	8.2	10.0	..	..	..	..	..
Colored											
Omissions Av.	4.0	3.4	1.4	2.8	3.7	5.5	2.9	2.2	2.6	2.4	2.1
A.D.	3.5	3.3	1.3	2.4	2.8	4.5	2.3	1.9	1.9	1.9	1.7
Cancellations Av.	60.2	58.3	63.1	65.6	81.6	74.5	77.4	82.4	89.1	86.4	87.1
A.D.	10.9	9.5	9.0	8.6	11.2	11.2	12.7	14.0	8.7	9.1	10.0

Fredericksburg.

White											
Omissions Av.	..	..	2.3	..	3.3	..	2.0	1.9	..	2.6	2.3
A.D.	..	..	2.2	..	2.8	..	1.8	1.2	..	2.0	2.0
Cancellations Av.	..	..	53.0	..	62.3	..	67.0	74.9	..	72.1	74.9
A.D.	..	..	6.5	..	9.9	..	7.8	9.9	..	14.7	13.8
Colored											
Omissions Av.	..	..	3.0	..	1.7	..	2.1	4.3	..	3.3	2.2
A.D.	..	..	2.9	..	1.0	..	1.1	2.5	..	1.8	2.0
Cancellations Av.	..	..	57.7	..	79.5	..	76.4	88.3	..	82.0	78.1
A.D.	..	..	6.5	..	7.7	..	15.3	8.5	..	9.5	12.5

Newport News.

White											
Omissions Av.	..	..	..	2.2	2.5	1.5	..	..	..	..	..
A.D.	..	..	..	2.1	2.5	1.2	..	..	..	..	..
Cancellations Av.	..	..	..	58.4	62.7	63.1	..	..	..	..	..
A.D.	..	..	..	11.3	9.0	13.0	..	..	..	..	..
Colored											
Omissions Av.	..	..	2.0	..	4.6	..	..	..	..	..	..
A.D.	..	..	2.0	..	3.4	..	..	..	..	..	..
Cancellations Av.	..	..	58.5	..	70.0	..	..	..	..	..	..
A.D.	..	..	9.4	..	8.8	..	..	..	..	..	..

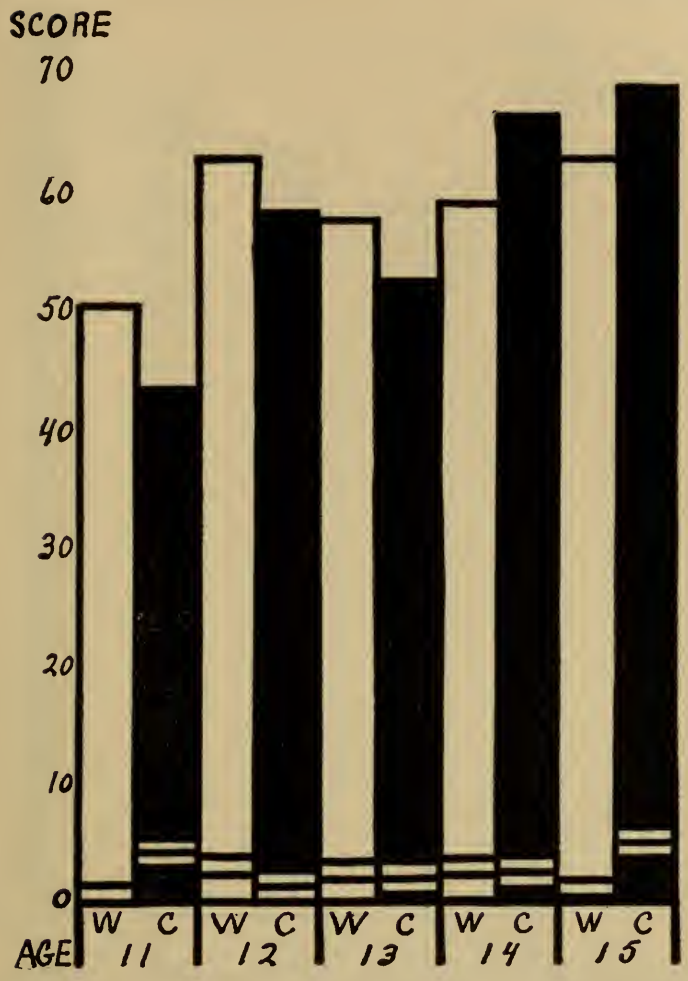

Fig. 13. Cancellation Test—Scores of White and Colored Boys—Richmond.*

*The total height of the columns indicates the score for cancellations; the height of the cross-lines indicates the score for omissions.

A reference to the graphs will show that there is no constant relation between the omissions and the cancellations, and that in all cases the omissions were very few. Only a small number of pupils, less than one-half, made any omissions at all. This accounts for the large deviations of the scores for omissions as shown in the tables mentioned, and for the very erratic behavior of these scores in the tables of ccomparison, Tables 28-32. On the whole, the negroes seem to have made

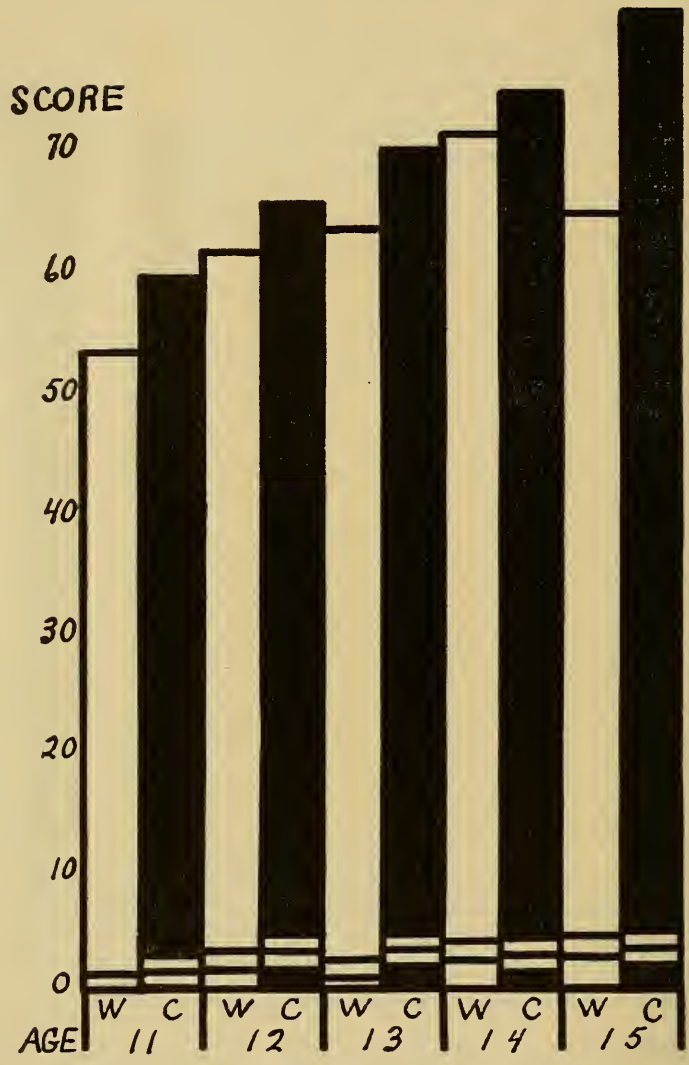

Fig. 14. Cancellation Test—Scores of White and Colored Girls—Richmond.

slightly more omissions than the whites, but the size of the probable errors indicates that this may have been a chance occurence. Certainly the negro girls, who, as will appear, are definitely superior to the white girls in cancellations, do not show as great excess in omissions as do the negro boys, and the negro boys are not superior to the white boys in cancellations at all. The omissions, therefore, will be disregarded

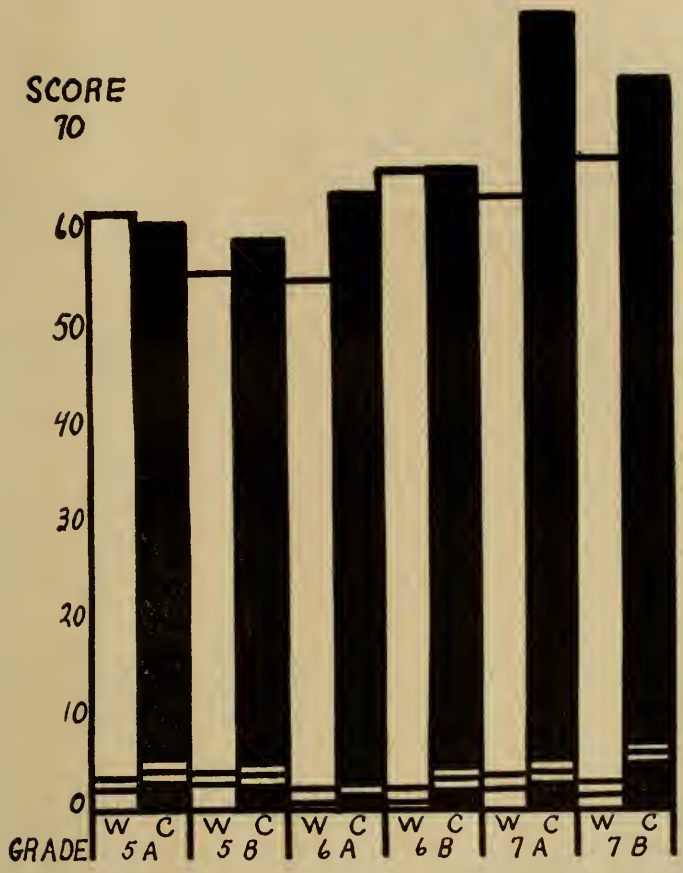

Fig. 15. Cancellation Test—Scores of White and Colored Grades—Richmond.

in the following comparisons. It may be mentioned that the peculiarity noted above in the performance of the maze test by the two races, wherein the negroes made uniformly smaller scores and thus seemed to be more careful than the whites, does not occur in the test for cancellation.

Another matter that may be remarked is that the large deviations of the scores for omission is in decided contrast with the small deviations of the cancellation scores, when the two sets of deviations are compared with the relative size of the scores themselves. That is, the so-called coefficients of variation are larger for omissions than for cancellations. A similar situation appeared in the maze test. Here the devia-

tions of the scores for touches were as large as those of the scores for distance, while the former scores were not over one-third as large as the latter. Now both omissions and touches are measures of accuracy and both cancellations and distance are measures of speed; the two tests measure the same phenomena, one in the field of movement and the other in the field of perception and reaction. And in both tests there is greater uniformity in speed of performance than in accuracy.

TABLE XXVIII.

CANCELLATION TEST—DIFFERENCE BETWEEN SCORES OF WHITE AND COLORED SUBJECTS CLASSIFIED BY AGE AND SEX

(Minus signs indicate greater scores by the colored subjects.)

Ages	11	12	13	14	15	16	17	18	Av.	P.E.
Richmond.										
Boys										
Omissions	— 3.5	1.5	.8	.6	— 3.5	..	..	..	— .8	.8
Can'l't'ns	6.7	4.1	5.1	— 7.1	— 5.9	..	..	..	.6	2.2
Girls										
Omissions	— .8	— .8	— 1.2	.2	.1	..	..	..	— .5	.2
Can'l't'ns	— 6.4	— 3.9	— 6.7	— 3.2	—16.7	..	..	..	— 7.4	1.4
Fredericksburg.										
Boys										
Omissions	..	..	2.1	..	— 5.9	.1	..	.8	— .7	1.0
Can'l't'ns	..	..	— .8	..	— 3.8	— 4.1	..	—11.7	— 5.1	1.4
Girls										
Omissions	..	..	— .1	.2	2.7	— 3.7	— 2.2	2.0	— .2	.6
Can'l't'ns	..	..	— 7.8	3.8	7.3	—22.5	— 9.5	— 7.0	— 5.9	2.7
Newport News.										
Boys										
Omissions	..	1.5	..	— .6	..	..	..	..	.4	.6
Can'lt'ns	..	4.4	..	— 6.4	..	..	..	..	— 1.0	3.2
Girls										
Omissions	..	— 1.1	1.0	1.2	2.1	..	..	..	.8	.4
Can'l't'ns	..	— 2.7	0.	8.4	6.7	..	..	..	3.1	1.8

TABLE XXIX.

CANCELLATION TEST—DIFFERENCE BETWEEN SCORES OF WHITE AND COLORED SUBJECTS CLASSIFIED BY GRADES

(Minus signs indicate greater scores by the colored subjects.)

Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E.
Richmond.												
Omissions	—1.4	— .4	.1	—1.1	— 1.2	—3.4	..	..	..	..	—1.2	.3
Cancellations	1.4	—3.1	—8.7	— .1	—18.8	—7.7	..	..	..	..	—6.2	2.0
Fredericksburg.												
Omissions	..	..	— .7	..	1.6	..	— .1	— 2.4	— .7	.1	— .4	.3
Cancellations	..	..	—4.7	..	—17.2	..	—9.4	—13.4	—9.9	—3.2	—9.6	1.4
Newport News.												
Omissions	..	..	..	..	— 2.1	..	..	..	..	..	—2.1	
Cancellations	..	..	..	..	— 7.3	..	..	..	..	..	—7.3	

TABLE XXX.

CANCELLATION TEST—PERCENTAGE OF THE SCORE OF THE WHITE OBTAINED BY THE COLORED SUBJECTS, CLASSIFIED BY AGE AND SEX

Ages	11	12	13	14	15	16	17	18	Av.	P.E.
Richmond.										
Boys										
Omissions	450	53	71	81	319	..	..	..	194.8	57.2
Cancellations	87	93	91	112	109	..	..	..	98.4	3.6
Girls										
Omissions	200	132	167	93	97	..	..	..	137.8	14.1
Cancellations	112	106	111	105	126	..	..	..	112.0	2.1
Fredericksburg.										
Boys										
Omissions	..	..	32	..	259	96	..	65	113.0	30.1
Cancellations	..	..	102	..	106	106	..	115	107.2	1.5
Girls										
Omissions	..	..	107	91	18	305	320	50	148.5	38.1
Cancellations	..	..	113	94	90	131	113	109	108.3	3.8
Newport News.										
Boys										
Omissions	..	0	..	137	..	..	..	..	68.5	40.7
Cancellations	..	92	..	110	..	..	..	..	101.0	5.4
Girls										
Omissions	..	141	58	57	43	..	..	..	74.7	13.8
Cancellations	..	104	100	88	89	..	..	..	95.2	2.8

TABLE XXXI.

CANCELLATION TEST—PERCENTAGE OF THE SCORE OF THE WHITE OBTAINED BY THE COLORED SUBJECTS, CLASSIFIED BY GRADES

Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E.
Richmond.												
Omissions	154	113	93	165	148	262	..	..	..	..	155.8	13.2
Cancellations	98	106	116	100	130	111	..	..	..	..	110.2	3.0
Fredericksburg.												
Omissions	..	..	130	..	52	..	105	226	127	96	122.7	13.2
Cancellations	..	..	109	..	128	..	114	118	114	104	114.5	1.9
Newport News.												
Omissions	..	..	..	..	184	..	..	..	..	..	184.0	..
Cancellations	..	..	..	..	112	..	..	..	..	..	112.0	..

TABLE XXXII.

CANCELLATION TEST—PERCENTAGE OF COLORED SUBJECTS REACHING OR EXCEEDING THE AVERAGE OF THE WHITE, BY AGE AND SEX AND BY GRADES

Ages	11	12	13	14	15		Av.	P.E.
Richmond.								
Boys								
Cancellations	33	31	37	78	60	..	47.8	6.4
Girls								
Cancellations	67	59	74	60	81	..	68.2	2.8
Grades	5A	5B	6A	6B	7A	7B		
Cancellations	49	63	80	55	89	67	67.2	3.8

In explanation of this it may be suggested that individuals differ in their attitude toward the tests as well as in their ability to perform them. Of course those who emphasize speed will neglect accuracy and those who emphasize accuracy will neglect speed. These matters will normally adjust themselves among a large number of subjects, and the final scores for accuracy and speed will not be affected. But with reference to approximating the average score it may be that speed of reaction will more readily take care of itself than will accuracy in a normal performance of a test. At the start, subjects are set to attempt a performance that will be in large measure speedy, and at least a reasonable degree of speed is put forth by all. Accuracy, however, requires more constant care on the part of the performer; neglect of accuracy is not so apparent to him while he is reacting—he may not notice the omitted letter or the touch. It is more difficult to gauge and to control accuracy than speed. And so, unless there is a very careful adjustment of attitude toward accuracy by all subjects, it will vary considerably, while speed will vary to a less degree. Consequently a greater deviation for accuracy than for speed is to be expected in tests involving both factors.

The tables which make the comparisons between whites and negroes in cancellation show the following facts: In Richmond, the colored boys obtained 98.4 per cent. of the score of the white boys. The colored girls obtained 112.0 per cent. of the score of the white girls. And when classified by grades—the grades contain a larger proportion of girls than of boys—the colored pupils obtained 110.2 per cent. of the score of the white pupils. This inferiority of colored to white boys may be disregarded, since it falls within the range of the probable error. It may be said that the boys of the two races did about equally well. But the colored girls and the colored grades are clearly superior to the white girls and grades, the probable errors in these cases being sufficiently small for reliability.

In Fredericksburg, the colored boys, girls and grades are all definitely superior to the white. In Newport News, a very slight superiority is shown by the colored boys, but this may be discounted as was the inferiority of the colored boys in Richmond. The colored girls seem to be inferior here, but this is not well established when considered in connection with the probable error. The grade comparison is considerably

in favor of the colored pupils, but it is based upon figures from only one grade of each race.

The percentages of colored subjects reaching or exceeding the average of the white, in Richmond, are as follows: Boys, 47.8; Girls, 68.2; Grades, 67.2. As in the former comparison for Richmond, the size of the probable errors renders it unsafe to say there was any real difference between the boys of the two races; but the colored girls and grades are undoubtedly superior.

Taken all together, the figures show that the colored girls are superior to the white girls in the traits measured by this test, and that the colored boys are not appreciably inferior to the white boys. This sex difference between the races is interesting, but no satisfactory explanation of it suggests itself. It is confirmed by Pyle ('15), in the study previously mentioned. From the figures which he gives it may be calculated that in the "A Test"—the cancellation test used here—the colored boys tested by him obtained 98.4 per cent. of the score of the white boys and the colored girls obtained 108.2 per cent. of the score of the white girls. These are almost identical with the figures found herein.

In this connection it may be said that no other constant or reliable racial sex difference in ability is indicated by this study. The scores of the boys of both races were generally, though not always, slightly lower than the scores of the girls, as is usually the case in psychological tests. And on the whole there is a slightly smaller difference between the white and negro girls than between the white and negro boys, but this is not at all invariably true. Pyle states, as quoted in Chapter I, that in the tests which he employed the girls of the two races stood nearer together than did the boys.

CHAPTER IV

COMPARISON OF SUB-CLASSES OF NEGROES

The terms negro and colored have been used interchangeably in this study, (except in the tables and the graphs), and they are generally so used. But it is obvious that such usage is justified only by convenience and not by fact. The so-called negroes of the United States are negroes only in part; in large measure they are people of mixed blood, and the intermixture has been almost entirely with the white race. There are all degrees of intermixture, ranging from almost pure negro to almost pure white. "Mulatto" is the term generally employed to describe persons of this mixed stock. But here again the usage is justified only by convenience, since a mulatto, strictly speaking, is the offspring of the union of a pure white and a pure negro. The terms quadroon, meaning the child of a mulatto and a white, and consequently three parts white and one part negro; and octoroon, meaning a child of a white and a quadroon, seven parts white and one part negro, are fairly common. But there is no recognized term to describe the racial status of the offspring of a pure negro and a mulatto, who is three parts negro and one part white. "Sambo" has been suggested for this purpose, but the popular connotation of the word is not such as to convey the desired meaning. And there are no widely accepted terms to describe other degrees of race admixture. The need for them has not been felt.

The relative number of pure negroes and persons of part negro blood in this country is not accurately known. The Federal Census has made an attempt to determine this, and its figures are the most reliable that we have. The negroes were classified as black and mulatto. But as stated in the census report ('10, p. 79): "Considerable uncertainty necessarily attaches to this classification, however, since the ac-

curacy of the distinction made depends largely upon the judgment and care of the enumerators. Moreover, the fact that the definition of the term 'mulatto' adopted at different censuses has not been entirely uniform may affect the comparability of the figures in some degree. In 1870, as in 1910, however, the term was applied to all persons having any perceptible trace of negro blood, excepting, of course, negroes of pure blood." The census shows that in 1910, 79 per cent. of the negro population of the country was black and 21 per cent. mulatto—roughly speaking, there were about eight million blacks and two million mulattoes. In Virginia, the negro population was 67 per cent. black and 33 per cent. mulatto. In Richmond, the percentages of blacks and mulattoes were 60 and 40, respectively.

The percentage of mulattoes is generally higher in the cities than in the rural districts. In Virginia, the five cities with a population of 25,000 or over have an average of 43 per cent. of mulattoes in their negro populations. This figure, when compared with the mulatto population of the state, is fairly typical of the larger proportion of mulattoes in the cities of the country at large.

The percentage of mulattoes is also in general considerably higher in the North than in the South. The states with the largest negro populations have the largest percentage of pure negroes, though there are exceptions to this relation. South Carolina, Alabama and Georgia, for example, have negro populations of 55.2, 42.5 and 45.1 per cent., respectively. And the percentages of mulattoes among the negroes of these states are 16.1, 16.7 and 17.3, respectively. In Illinois, Pennsylvania and Massachusetts, the negroes are 1.9, 2.5 and 1.1 per cent. of the total populations. And in these states the percentages of mulattoes are 33.8, 19.2 and 36.7. States with negro populations intermediate between the two groups mentioned are Kentucky, Tennessee and Maryland, which have in their respective populations 11.4, 21.7 and 17.9 per cent. of negroes. And here the percentages of mulattoes are respectively 25.2, 25.1 and 18.6. On the whole, there are larger percentages of mulattoes among the negroes in states with small negro populations, and there are larger percentages in the cities than in the country districts.

What these facts indicate it is difficult to say. They may mean that mulattoes are more attracted than are pure negroes

by the reputed advantages held out to colored people in the North, and by the reputed opportunities of city life. If so, it would seem that mulattoes have greater capacity for perceiving opportunity and greater ambition to take advantage of it. Or color distinctions among the negroes themselves may influence those of lighter skin to seek to relieve the circumpressure of the bulk of their race by Northern and urban migration. Or the non-agricultural industries in which negroes are engaged in the North and in the cities may possibly select mulattoes in preference to blacks, either because of their lighter color or because of their greater ability, or for both reasons. Or it may be that there is greater race intermixture in the North and in the cities than in the rural districts and the South. All four of these factors may operate. The census shows that there has been taking place a migration of negroes from the country to the city, and from the South to the North—particularly to the cities of the North. And it is in these centers of migration that the proportion of mulattoes is highest. Several observers, (see Stone ,'08, p. 401, ff.), have reported the apparent growth of a class distinction between mulattoes and pure blacks, tending to separate them, especially in the cities. The occupations in which negroes are employed in the cities and in the North have increased and become more standardized in recent years, and intelligence and light color are both probably more in demand in such occupations than in the more simple and isolated labor of rural life. And the life of the so-called underworld of cities, and the fact that inter-racial marriages are permitted in the North, would probably tend to increase the percentage of mulattoes in these places. So while the causes of the distribution of mulattoes cannot be definitely stated, it would seem that those mentioned above may reasonably be included among them.

It is further worthy of note, that according to the census figures the relative number of mulattoes is increasing. The years in which they were separately classified were 1850, 1860, 1870, 1890 and 1910. And the percentages of mulattoes in the country at large were as follows in those years: 11.2, 13.2, 12.0, 15.2 and 20.9. But this does not mean, as is often supposed, that intermixture of whites and negroes has increasingly taken place in accordance with these percentages. The relative increase in the number of persons of mixed blood

may have been due to marriage among colored people themthemselves, after a certain degree of racial admixture had occurred, without an increase, or even a continuance, of direct crossing between negroes and whites. For the mulattoes and the pure negroes marry each other, and this reduces the original percentage of pure negroes among the total offspring, and increases the percentage of persons of mixed blood. Of course, in the long run, unless there were a new infusion from white stock, the amount of white blood would become very small in any individual. But within the years covered by the census reports there would be enough traces of the white left to cause the individuals possessing them to be classified as having some white characteristics, and the basis of the census classification is the possession of any perceptible trace of white blood. This consideration renders the increase of racial intermixture as indicated by the census figures undoubtedly too high, even if the accuracy of the figures be granted.

Views of Other Writers

The presence of the mulatto element among the colored population has been taken into account by a number of writers who have dealt with the negro, although it has been neglected by a number of others. In Chapter I was quoted a statement from Strong ('13) to the effect that she divided the negroes tested by her into three classes on the basis of the color of their skin, and found that those of lightest color varied most from the normal, both above and below. Mayo ('13) was aware that the presence of mulattoes might have influenced the school records of the negroes in his study. Pyle ('15) suggested that the superior negroes in his groups might have had a greater proportion of white blood. And Bean ('06) recognized that the brains which he investigated were partly those of mulattoes. Statements from other writers may be given to indicate the attitude of those who have considered the matter from various standpoints.

Boas, in concluding a discussion of the American negro problem, writes: "It appears....that the most important practical questions relating to the negro problem have reference to the mulattoes and other mixed bloods—to their physical types, their mental and moral qualities, and their vitality. When the bulky literature of this subject is carefully sifted, little remains that will endure serious criticism; and I do

not believe that I claim too much when I say that the whole work on this subject remains to be done. The development of modern methods of research makes it certain that by careful inquiry definite answers to our problems may be found. Is it not, then, our plain duty to inform ourselves, that, so far as that can be done, deliberate consideration of observations may take the place of heated discussion of beliefs in matters that concern not only uorselves, but also the welfare of millions of negroes?" (11, pp. 277-278).

Stanley Hall says: "The chief event in the history of the Southern negro in the new world is the infiltration of white blood. But for this the negro in mind and body would be so distinct from us that all our problems connected with the race would be vastly simplified. Just how far he has lost his rare racial homogeneity here it is impossible to tell. The extreme minimal estimate that I have found is that one-tenth have some white blood, and one maximal estimate is that two-thirds are partly white. Page thinks that from one-ninth to one-sixth are mixed. DuBois says that two million negroes have some white blood. Most estimates range somewhere between one-fifth and one-half. .... Moreover, the grade of pigmentation is not a sure index of the degree of miscegenation, and in the veins of some thought purely African probably flows at least a little of the best white blood of the land. .... Thus all the vast psychophysic differences between the two races are bridged, and they possibly fuse with each other by all imperceptible gradations....At any rate, men like Fred Douglas, Bishop Payne, Booker Washington, Du Bois Chestnut, Tanner, Dunbar, Thomas and a score of others, are not typical negroes." ('05, pp. 360-361).

In a discussion of the general status of the mulatto as compared with the pure negro, Jordan ('13) contends that the former is considerably superior to the latter. The pure negro is claimed to be capable of only the rudiments of civilization. His powers of attention and reflection are poor. He can draw general conclusions from particular cases only with difficulty, he is imitative rather than creative, he lacks foresight, he has small power of profiting by observation, his character is mobile, and he is guided largely by the instinct of the moment. "The negro cannot undergo mental development beyond a certain definite maximum. The curious thing is that no attempt is made to establish this opinion on a

scientific basis and to definitely determine the limit of mental development beyond which the law of diminishing returns dictates cessation of effort; and furthermore that in flat contradiction to this common opinion education is planned in apparent utter disregard of it." ('13, pp. 578-579). But with the mulatto the case is different. "Where negro, mulatto and white are jointly concerned the teachers are unequivocal in their opinion that mental alertness and the development of the higher psychical activities corresponds in degree quite uniformly with the amount of 'white' blood as judged by color of the skin." ('13, p. 577). It is true, argues Jordan, that many mulattoes are inferior, but this is because they come from inferior parents. The way to uplift the negro race is by the proper selection and breeding of mulattoes.

A view very different from this is held by Le Bon. He writes: "Doubtless very different races, the black and the white for example, may fuse, but the half-breeds that result constitute a population very inferior to those of which it is sprung, and utterly incapable of creating or even of continuing, a civilization. The influence of contrary heredities saps their morality and character. When half-breeds, the offspring of white men and negroes, have chanced to inherit a superior civilization, as in Saint Domingo, this civilization has speedily been overtaken by the most lamentable degeneration. Cross-breeding may be a source of improvement when it occurs between superior and sufficiently allied races, such as the English and the Germans in America, but it always constitutes an element of degeneration when the races, even though superior, are too different." ('98, pp. 52-53). Le Bon quotes Agassiz to the effect that Brazil is undergoing degeneration on account of the large number of half-breeds in the population, cross-breeding being fatal to the best qualities of whites, blacks and Indians, the peoples concerned. It should be said that this view of Le Bon's is held by only a small minority of those who have discussed the question.

Baker's opinion ('08) concerning the relative capacity of the mulatto and the pure negro does not seem to be very decided one way or the other. He points out that a number of leading negroes, as Washington, Du Bois, Douglass, Chestnutt, Braithwaite, Tanner and Terrell are mulattoes. Indeed, "Most of the leading men of the race to-day in every line of activity are mulattoes." ('08, p. 173). But on the

other hand, such negro leaders as Vernon, Miller, Dunbar, Price and Mason are probably pure-blooded. He claims that to be a mulatto is to be neither a negro nor a white, but is to have the ambitions and hopes of both races. Mulattoes and negroes keep together on account of social pressure from the whites. As to the number of mulattoes, Baker writes: "From my own observation and from talking and corresponding with many men who have had superior opportunities for investigation, I think it safe to say that between one-fourth and one-third of the Negroes in this country at the present time have a visible mixture of white blood.....It is probable that 3,000,000 persons out of the 10,000,000 population are visibly mulattoes." ('08, p. 153). The proportion of mulattoes is stated to be much larger in the North than in the South, and the census figures are mentioned as being unreliable.

In a discussion of the political status of the negro, Stone ('08) argues that a distinction should be drawn between the pure negro and the mulatto. "There can no longer be a question as to the superior intelligence of the mulatto over the Negro—of his higher average potential capacity." ('08, p. 401). The leaders of the colored race, says Stone, have been mulattoes, and this has been true in such places as Jamaica, Santo Domingo, Haiti, South Africa and Liberia, as well as in the United States. The exceptional blacks of pure blood who have attained prominence were generally not descended from true negroes at all. Their ancestry is to be found in those stocks, such as the Fulah and others of high type, that were brought from Africa as slaves in small numbers along with the mass of true negroes.

From these abstracts it is evident that there is very little definitely known as to the relative merits of pure negroes and mulattoes. Of opinion, based more or less closely upon observation, there is a great deal. But there has been no serious attempt made to attack the problem from an experimental or scientific standpoint. The views of men are uncertain as to the relative abilities of whites and negroes; it is to be expected that they will be much more uncertain when they deal with sub-classes within the colored group.

The Classification

In the present investigation the negroes tested were divided into four classes on the basis of racial purity as indicated

by color of skin, hair texture and general facial and cranial conformation, the main emphasis being placed upon color. The four classes were pure negroes, negroes three-fourths pure, mulattoes proper, and quadroons. Of course there were probably included in the classification some negroes who did not belong, strictly speaking, in any of these classes. A few octoroons, for example, may have been present, or a few persons who were of seven-eighths pure negro stock. Such cases were placed in the class which seemed to fit their status best, and it is not thought that any constant error resulted from this procedure.

It is also probable that errors were made in the classification. Certain individuals may have been placed in a class too near the pure negroes or too near the pure whites. But here again the incorrect classifications would tend to balance each other, and it is improbable that a constant error in any direction resulted. The effect of the overlapping of the classes would be to lessen the differences found between them.* Consequently it follows that in so far as the classification was inaccurate, the real differences were greater than those indicated by the scores.

In setting forth the results of the tests, the four classes mentioned are adhered to. But in order to make the classification still less subject to error, and to secure a larger number of subjects in each class, the pure and the three-fourths pure negroes are grouped together, and the mulattoes and the quadroons are grouped together, and the results are given separately in all cases for the two resulting classes as well as for the original four. The difference in amount of white blood between these two classes is greater than that between any two classes of the four-class division, and the difference between the scores of the combined pure and three-fourths negroes and the combined mulattoes and quadroons should be correspondingly greater than that between the classes of the original division. This we shall find to be the case. And it

*It seems to the writer that probably the greatest chance for erroneous classification occurred between the pure negroes and the negroes three-fourths pure. It is not unlikely that differences in color between various stocks of pure negroes may have caused some comparatively light-colored individuals of this class to be counted as three-fourths pure; and some three-fourths pure individuals of unusually dark native stock may have been classed as pure-blooded. This supposition is borne out by the fact that the differences revealed by the tests between the pure and the three-fourths pure negroes were less than the differences between the other classes.

should be noted in this connection that the class composed of mulattoes and quadroons is very predominantly mulatto, since the quadroons were few in number. This fact obviously makes the difference found between mulattoes and quadroons combined and pure and three-fourths negroes combined less than it really is.

It should be said that the classification of the negroes was made by the writer, who had had considerable experience with negroes, at the time the tests were administered. None of the subjects was previously known to him, and he is aware of no circumstance that could have influenced the classification in addition to the basis previously adopted. The subjects seemed to fit into the various classes both naturally and easily, and doubt as to the correctness of a classification was so infrequent as to be negligible.

Numbers and Ages

The negroes tested in Fredericksburg and Newport News were so few that the results from those cities were not used in this intra-racial study. There was not a sufficient number of each of the four classes in either city to enable results to be computed for any year or any grade. As in the general comparison between whites and negroes, results from only one subject were not considered.

The 319 negroes tested in Richmond fell into the different classes numerically as shown in Tables 33 and 34, which give the numbers by age and sex and by grades. The three highest and the two lowest years are not used in the comparisons on account of the small number of pupils in them. It may be noted that the largest class is composed of mulattoes, the smallest of quadroons, and that the classes of pure negroes and three-fourths pure negroes are of about equal size. The mulattoes and quadroons together constitute 52 per cent. of the total; the pure and three-fourths negroes together constitute 48 per cent. of the total. In the elementary school the mulattoes and quadroons are 46 per cent. of the total number; in the high school the mulattoes and quadroons are 59 per cent. of the total number. There is thus a larger proportion of light-colored negroes in the high school than in the elementary school. And in the grades tested as a whole there is a larger percentage of negroes of mixed blood than there is in the city at large, as shown by the census figures.

These facts as to the relative numbers of pure and mixed bloods in the school system indicate that the schools select colored persons of partly white lineage to a greater extent than they select pure negroes, and that as the grades advance the selection becomes more pronounced. This would imply that mulattoes in general are of greater ability and ambition than are pure negroes. And the fact that there is a larger proportion of light-colored negroes in the high school than in the elementary school would partly explain the relatively greater ability of high school negroes that was found in the general comparison between white and colored subjects. Mixed bloods, as will be shown, are of greater ability, and there are proportionately more of them in the upper grades.

TABLE XXXIII.

NUMBER OF COLORED SUBJECTS—RICHMOND—CLASSIFIED BY RACIAL PURITY, AGE AND SEX

Ages	10	11	12	13	14	15	16	17	18	19	21	Totals
Boys												
Pure	..	1	4	8	7	4	4	4	2	2	..	36
Three-Fourths	1	3	2	3	5	4	2	3	1	1	..	25
Mulattoes	..	1	8	7	4	7	8	2	3	1	..	41
Quadroons	..	1	..	1	2	1	..	..	..	..	..	5
Girls												
Pure	..	1	4	5	10	8	2	7	1	..	..	38
Three-Fourths	1	1	10	9	14	6	7	2	4	1	..	55
Mulattoes	2	4	8	16	12	11	19	10	6	1	1	90
Quadroons	..	3	..	4	6	2	5	4	4	1	..	29
Boys												
Pure and Three-Fourths	1	4	6	11	12	8	6	7	3	3	..	61
Mulattoes and Quadroons	..	2	8	8	6	8	8	2	3	1	..	46
Girls												
Pure and Three-Fourths	1	2	14	14	24	14	9	9	5	1	..	93
Mulattoes and Quadroons	2	7	8	20	18	13	24	14	10	2	1	119

TABLE XXXIV.

NUMBER OF COLORED SUBJECTS—RICHMOND—CLASSIFIED BY RACIAL PURITY AND GRADES

Grades	5A	5B	6A	6B	7A	7B	1A	2A	2B	3A	4A	Totals
Pure	10	10	11	5	5	4	12	5	2	3	7	74
Three-Fourths	10	13	10	5	7	5	9	9	5	4	3	80
Mulattoes	20	13	11	9	7	9	14	13	11	12	12	131
Quadroons	2	2	3	3	..	1	7	4	3	6	3	34
Pure and Three-Fourths	20	23	21	10	12	9	21	14	7	7	10	154
Mulattoes and Quadroons	22	15	14	12	7	10	21	17	14	18	15	165

The ages of the different classes of negroes in the various grades are given in Table 35, and the differences between the age of each class and the age of white pupils of the same grade—the white pupils in question being those tested in Richmond—are given in Table 36. This latter table shows that the pure negroes were .69 of a year older than the white pupils; the three-fourths pure negroes were .32 of a year older; the mulattoes were .29 of a year older; and the quadroons were .07 of a year younger. The pure and three-fourths negroes combined were .51 of a year older than the whites; the mulattoes and quadroons combined were .23 of a year older. These figures are significant. They show that the darker negroes were slower in reaching a given grade than were those of lighter color. The differences are small, and are subject to variation from grade to grade. But the average differences, which are here quoted, are uniformly greater for the darker negroes, and the probable errors are not large enough to invalidate the significance of this uniformity.

TABLE XXXV.

AGES OF THE COLORED SUBJECTS—RICHMOND—CLASSIFIED BY RACIAL PURITY AND GRADES

Grades	5A	5B	6A	6B	7A	7B	1A	2A	2B	3A	4A
Pure Av.	12.7	13.2	12.8	14.2	14.8	14.7	15.4	17.0	16.5	16.0	17.8
A.D.	.9	.6	.6	.3	.3	.7	.8	.4	.5	1.3	.7
Three-Fourths Av.	11.7	13.1	13.0	13.4	13.7	14.4	14.3	16.6	16.6	17.7	17.0
A.D.	1.0	1.0	.8	1.5	.6	.6	.6	.6	1.1	.9	1.3
Mulattoes Av.	12.6	12.4	12.8	13.2	13.8	14.6	15.2	15.8	16.5	16.6	17.6
A.D.	1.1	.9	.6	.8	1.3	.8	.5	.8	1.0	.5	1.2
Quadroons Av.	12.0	12.0	11.6	14.0	..	..	14.0	16.0	16.6	17.0	17.6
A.D.	1.0	1.0	.9	0.	..	..	.3	1.0	.9	.7	.9
Pure and Three-Fourths Av.	12.2	13.1	12.9	13.8	14.1	14.5	14.9	16.7	16.5	17.0	17.6
A.D.	1.0	.8	.7	.9	.7	.7	.8	.6	.9	1.1	.9
Mulattoes and Quadroons Av.	12.5	12.4	12.5	13.4	13.8	14.5	14.8	15.8	16.5	16.7	17.6
A.D.	1.1	.9	.9	.8	1.3	.9	.7	.9	1.0	.6	1.2

TABLE XXXVI.

AGES—DIFFERENCE IN YEARS BETWEEN THE WHITE AND EACH OF THE FOUR CLASSES OF COLORED SUBJECTS TESTED—RICHMOND

(Minus signs indicate that the colored subjects are of greater age.)

Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E.
Pure Negroes	—.3	—.7	.6	—1.0	—1.5	—1.1	—1.0	—1.6	.5	— .8	—.69	.15
Three-Fourths	.7	—.6	.4	— .2	— .4	.8	.1	—1.2	—1.2	0	—.32	.14
Mulattoes	—.2	.1	.6	0	— .5	—1.0	— .8	— .4	— .1	— .6	—.29	.10

5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E.
Quadroons											
.4	.5	1.8	— .8	..	..	.4	— .6	— .5	— .6	.07	.21
Pure and Three-Fourths											
.2	—.6	.5	— .6	— .8	— .9	— .5	—1.3	— .5	— .6	—.51	.09
Mulattoes and Quadroons											
—.1	.1	.9	— 2	— .5	— .9	— .4	— .4	— .2	— .6	—.23	.09

Standing in the Tests

The tests used in this comparison are the mixed relations, Tests I and II, and the completion. These tests revealed marked differences between whites and negroes as a whole, and they are therefore well adapted to bring out any differences that may exist between the various classes of negroes. The maze and cancellation tests did not show any considerable differences in the general inter-racial comparison, and they are consequently not employed here.

In setting forth the results of the tests the same order is followed as in the preceding chapter. In the case of each test, first are given the actual scores, with their average deviations, classified by age and sex and by grades. Then appear graphs based upon these scores. The graphs are drawn only for the two-division classification—that of pure and three-fourths negroes combined and mulattoes and quadroons combined. The scores of the white pupils tested in Richmond are included in the graphs for the sake of comparison. Following the graphs are the tables in which the comparisons are made. In each instance the score of the colored subjects is compared with that of the corresponding white pupils. The actual differences between the scores are given; the percentage of the score of the whites that was obtained by the negroes next appears; and lastly are shown the percentages of the two-division classification that reach or exceed the average score of the whites. The averages of the various ages and grades, with their probable errors, appear in each table of comparison.

Tables 37 and 38 give the scores in the mixed relations test. Figures 16-21 present these scores in graphic form. Tables 39-43 make the comparisons. From these latter tables the following facts appear.

TABLE XXXVII.

MIXED RELATIONS TEST—SCORES OF COLORED SUBJECTS—RICHMOND—CLASSIFIED BY RACIAL PURITY, AGE AND SEX

Ages	10	11	12	13	14	15	16	17	18	19
Test I.										
Boys—Pure										
Av.	..	..	6.5	12.3	9.7	10.5	19.3	18.7	20.0	16.5
A.D.	..	..	1.0	4.1	3.2	1.5	8.3	5.2	4.0	10.5
Boys—Three-Fourths										
Av.	..	9.0	9.0	17.0	18.5	6.5	21.0	19.3	..	..
A.D.	..	2.6	1.0	6.0	5.5	2.5	0.	10.3	..	..
Boys—Mulattoes										
Av.	..	..	12.5	7.4	12.5	17.2	21.0	32.5	19.6	..
A.D.	..	..	6.0	3.5	4.5	8.5	9.5	2.5	12.6	..
Boys—Quadroons										
Av.	..	..	..	..	28.0	..	..	..	..	..
A.D.	..	..	..	..	0.	..	..	..	..	..
Girls—Pure										
Av.	..	..	9.6	10.5	12.6	15.1	17.0	21.4	..	..
A.D.	..	..	4.0	6.0	4.4	7.5	5.0	6.1	..	..
Girls—Three-Fourths										
Av.	..	..	9.8	10.6	11.4	20.8	23.4	16.0	16.5	..
A.D.	..	..	4.6	3.7	6.1	7.8	6.7	4.0	6.0	..
Girls—Mulattoes										
Av.	9.5	12.0	12.5	14.6	15.7	18.1	20.1	29.5	14.8	..
A.D.	7.5	3.0	6.1	6.9	9.9	9.4	7.2	4.7	6.5	..
Girls—Quadroons										
Av.	..	9.6	..	10.7	23.0	20.0	23.4	30.7	25.2	..
A.D.	..	5.3	..	7.2	8.3	12.0	6.4	4.2	9.7	..
Test II.										
Boys—Pure										
Av.	..	..	7.7	13.0	12.8	18.0	24.0	26.5	36.5	28.5
A.D.	..	..	2.7	3.5	8.8	7.0	7.0	10.5	1.5	.5
Boys—Three-Fourths.										
Av.	..	11.3	9.0	17.3	18.8	4.5	22.0	33.3	..	..
A.D.	..	7.0	0.	7.0	10.8	1.5	7.0	3.0	..	..
Boys—Mulattoes										
Av.	..	..	14.0	9.8	15.0	27.5	24.5	39.5	27.6	..
A.D.	..	..	8.2	3.4	8.0	7.1	10.0	.5	8.0	..
Boys—Quadroons.										
Av.	..	..	..	..	25.5	..	..	..	..	..
A.D.	..	..	..	..	13.5	..	..	..	..	..
Girls—Pure.										
Av.	..	..	9.0	8.2	13.7	19.8	28.5	26.8	..	..
A.D.	..	..	3.3	2.2	7.5	8.8	7.5	9.7	..	..
Girls—Three-Fourths										
Av.	..	..	9.8	15.2	11.2	26.3	29.7	22.0	20.2	..
A.D.	..	..	4.8	6.6	7.5	7.3	6.7	4.0	5.2	..
Girls—Mulattoes										
Av.	13.0	14.0	12.1	11.6	20.5	20.6	26.4	35.3	19.8	..
A.D.	5.0	5.0	5.3	7.6	12.2	10.0	6.6	3.7	10.8	..
Girls—Quadroons										
Av.	..	15.5	..	8.6	24.6	27.0	30.8	37.5	30.7	..
A.D.	..	3.5	..	4.6	12.6	10.0	5.2	1.0	8.2	..
Test I.										
Boys—Pure and Three-Fourths										
Av.	..	10.5	7.3	13.6	12.9	7.8	19.7	19.0	20.3	16.5
A.D.	..	3.5	1.3	4.2	6.0	2.8	6.7	7.4	3.0	10.5
Boys—Mulattoes and Quadroons										
Av.	..	13.5	12.5	9.5	15.6	17.2	21.0	32.5	19.6	..
A.D.	..	4.5	6.0	4.7	7.4	8.5	9.5	2.5	12.6	..
Girls—Pure and Three-Fourths										

Ages	10	11	12	13	14	15	16	17	18	19
Av.	..	17.5	9.7	10.6	11.9	18.0	22.0	20.2	17.2	..
A.D.	..	3.5	4.3	4.4	5.3	8.3	6.2	5.5	5.4	..
Girls—Mulattoes and Quadroons										
Av.	9.5	11.0	12.5	13.7	18.1	18.4	20.8	29.8	19.0	29.5
A.D.	7.5	4.2	6.1	7.2	9.9	9.8	6.9	4.7	10.0	.5
Test II.										
Boys—Pure and Three-Fourths										
Av.	..	12.0	8.0	14.1	15.3	11.2	23.3	29.8	36.6	32.0
A.D.	..	6.0	2.8	4.7	10.0	7.5	7.0	8.2	1.3	4.6
Boys—Mulattoes and Quadroons										
Av.	..	14.0	14.0	13.2	18.5	28.4	24.5	39.5	27.6	..
A.D.	..	12.0	8.2	7.2	10.8	7.0	10.0	.5	8.0	..
Girls—Pure and Three-Fourths										
Av.	..	25.5	9.6	12.7	12.2	22.6	29.4	25.7	19.8	..
A.D.	..	.5	4.5	5.8	7.7	8.0	6.8	8.5	4.8	..
Girls—Mulattoes and Quadroons										
Av.	13.0	14.5	12.1	11.1	21.9	21.6	27.3	35.9	24.2	28.0
3.3	11.0	0.	A.D.	5.0	4.5	5.3	7.3	10.0	10.1	6.6

TABLE XXXVIII.

MIXED RELATIONS TEST—SCORES OF COLORED SUBJECTS—RICHMOND—CLASSIFIED BY RACIAL PURITY AND GRADES

Grades	5A	5B	6A	6B	7A	7B	1A	2A	2B	3A	4A
Test I.											
Pure											
Av.	7.6	10.5	12.4	12.2	13.3	11.7	18.4	17.4	21.0	28.6	17.5
A.D.	2.6	3.8	4.2	3.7	4.3	5.2	7.7	4.4	1.0	3.3	6.5
Three-Fourths											
Av.	9.3	8.6	13.6	17.0	8.7	13.4	17.7	20.0	22.0	22.0	22.3
A.D.	3.5	1.6	5.6	4.0	5.5	6.4	4.1	7.1	7.6	6.6	10.3
Mulattoes											
Av.	9.8	12.3	13.1	12.8	9.0	11.6	23.2	22.0	16.4	30.0	24.0
A.D.	3.9	4.7	7.6	6.4	4.0	5.5	6.5	9.8	6.0	3.9	10.3
Quadroons											
Av.	4.5	9.0	12.3	13.0	..	..	27.3	22.2	13.3	32.1	29.6
A.D.	2.5	1.0	7.0	2.0	..	..	4.6	8.2	5.0	3.1	4.6
Test II.											
Pure											
Av.	8.7	9.8	12.5	15.2	18.2	11.5	22.5	28.4	26.0	35.0	28.4
A.D.	4.5	4.8	4.5	4.2	7.8	5.0	10.0	4.4	10.0	1.3	7.5
Three-Fourths											
Av.	12.6	8.9	12.1	16.0	14.4	10.6	24.6	27.2	29.0	34.2	24.3
A.D.	6.8	4.5	6.1	8.8	7.5	6.6	8.4	7.5	6.4	4.7	9.6
Mulattoes											
Av.	9.1	12.1	15.7	14.0	17.4	13.4	28.6	28.3	21.8	35.6	30.5
A.D.	4.2	7.6	8.1	8.2	7.2	7.1	6.6	7.3	7.1	2.8	8.6
Quadroons											
Av.	4.0	9.0	22.5	8.0	..	..	35.1	29.7	23.0	36.1	34.6
A.D.	0.	3.0	3.5	2.6	..	..	2.4	6.7	8.0	1.5	4.6
Test I.											
Pure and Three-Fourths											
Av.	8.4	9.4	13.0	14.2	10.1	12.6	18.1	19.0	21.7	25.3	19.0
A.D.	3.0	2.7	4.9	4.0	5.9	6.0	5.8	5.9	5.5	5.6	8.0
Mulattoes and Quadroons											
Av.	9.3	11.8	13.0	12.9	9.0	13.1	24.5	22.0	15.7	30.7	25.1
A.D.	3.9	4.0	7.4	5.6	4.0	6.9	6.3	9.4	5.7	3.6	9.4
Test II.											
Pure and Three-Fourths											

Grades	5A	5B	6A	6B	7A	7B	1A	2A	2B	3A	4A
Av.	10.5	9.3	12.3	15.6	16.0	11.0	23.4	27.6	28.1	34.5	27.2
A.D.	5.5	4.8	5.2	6.4	8.0	6.2	9.3	6.6	7.5	3.4	8.4
Mulattoes and Quadroons											
Av.	8.9	11.7	16.7	12.5	17.4	13.7	30.8	28.6	22.0	35.8	31.3
A.D.	4.1	6.8	8.0	7.0	7.2	6.7	5.7	7.3	7.3	2.5	7.9

In Test I, in the case of boys, classified by age, the pure negroes obtained 58.8 per cent. of the score of the whites; the three-fourths pure negroes obtained 72.2 per cent. of the score of the whites; and the mulattoes obtained 78.5 per cent. of the white score.* When the boys are grouped into two classes, pure and three-fourths combined and mulattoes and quadroons combined, the former class is shown to have obtained 62.0 per cent. of the score of the whites while the latter class obtained 83.5 per cent. of the white score.

The girls in Test I, classified by age, obtained the following percentages of the white score: Pure negroes, 68.0; three-fourths pure negroes, 71.3; mulattoes, 87.5; quadroons, 99.0. When the girls are arranged in two classes the results are as follows: The pure and three-fourths negroes combined scored 72.0 per cent. as high as the whites; the mulattoes and quadroons combined scored 89.3 per cent. as high as the whites.

The grade comparison for Test I shows that the pure negroes, boys and girls together, scored 73.3 per cent. as high as the whites; the three-fourths pure negroes scored 74.6 per cent. as high; the mulattoes scored 81.6 per cent. as high; the quadroons scored 87.9 per cent. as high as the whites. The two-division classification by grades shows that the pure and three-fourths negroes obtained 72.9 per cent. of the white score, and that the mulattoes and quadroons obtained 82.8 per cent. of the white score.

The percentages of negroes reaching or exceeding the average of the whites were as follows in Test I: Boys—Pure and three-fourths combined, 17.0; Mulattoes and quadroons combined, 38.5. Girls—Pure and three-fourths combined, 25.5;

*There was not a sufficiently large number of quadroon boys to be included as a separate class in the tables of comparison. There were only five such boys in all, and only two of them were in any one age group, namely, age 14. These two scored higher than any of the other classes of negroes, but of course a result from such a small number is practically worthless. The quadroon boys are included in the groups of combined mulattoes and quadroons, however, and in the grade groups of quadroons, which contain both boys and girls.

Mulattoes and quadroons combined, 41.3. Grades—Pure and three-fourths combined, 25.4; Mulattoes and quadroons combined, 38.4.

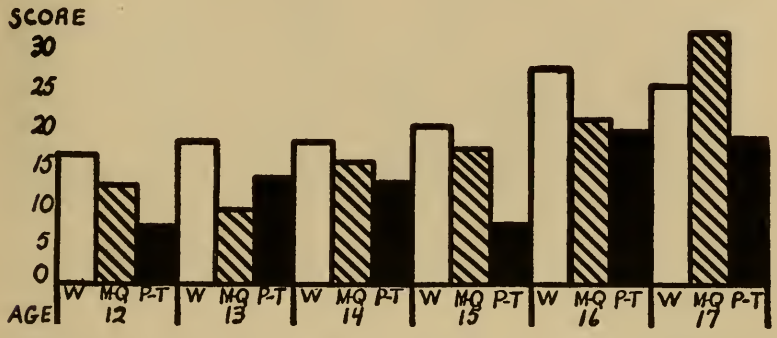

Fig. 16. Mixed Relations Test I—Scores of Whites, Mulattoes and Quadroons Combined, and Pure and Three-Fourths Negroes Combined—Boys—Richmond.*

*The white, the shaded and the black columns indicate the scores of the whites, the mulattoes and quadroons combined, and the pure and three-fourths negroes combined, respectively.

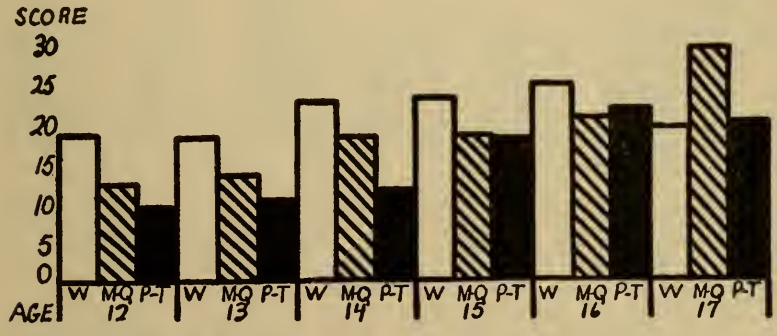

Fig. 17. Mixed Relations Test I—Scores of Whites, Mulattoes and Quadroons Combined, and Pure and Three-Fourths Negroes Combined—Girls—Richmond

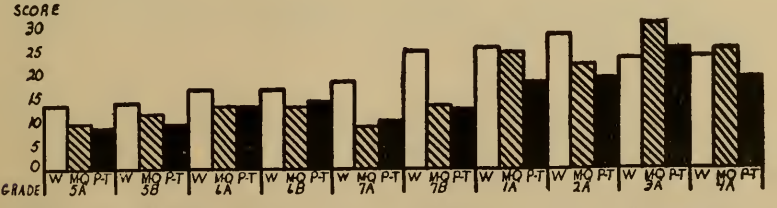

Fig. 18. Mixed Relations Test I—Scores of Whites, Mulattoes and Quadroons Combined, and Pure and Three-Fourths Negroes Combined—Grades—Richmond.

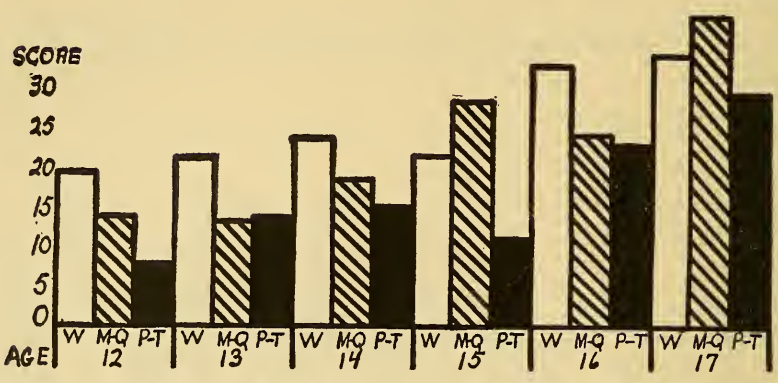

Fig. 19. Mixed Relations Test II—Scores of Whites, Mulattoes and Quadroons Combined, and Pure and Three-Fourths Negroes Combined—Boys—Richmond.

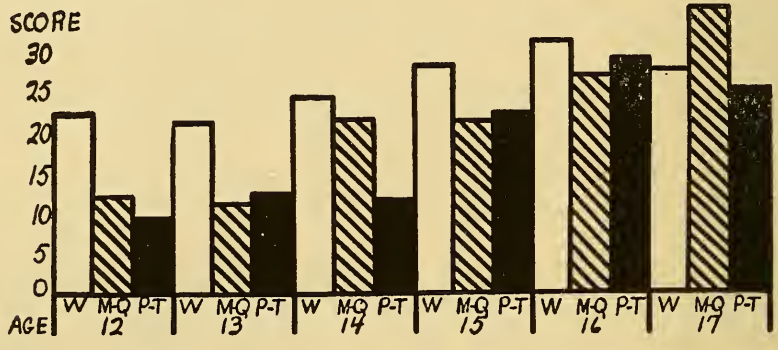

Fig. 20. Mixed Relations Test II—Scores of Whites, Mulattoes and Quadroons Combined, and Pure and Three-Fourths Negroes Combined—Girls—Richmond.

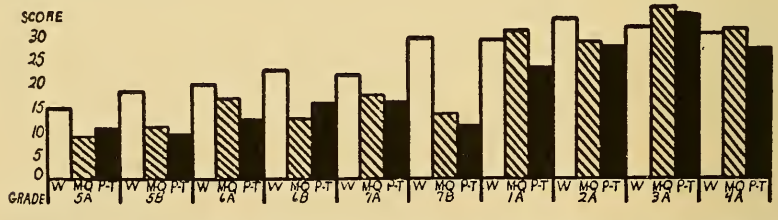

Fig. 21. Mixed Relations Test II—Scores of Whites, Mulattoes and Quadroons Combined, and Pure and Three-Fourths Negroes Combined—Grades—Richmond.

These figures show that in Test I the size of the score made by the negroes varies directly with the amount of their white blood. As judged by the averages, this is true without excep-

tion for both boys and girls and in both the age and the grade classifications. The size of the probable errors and the constancy of the results renders the differences reliable. In the two-division classification the differences are larger than in the four-division classification, as was to be expected, and the results here are especially reliable when the size of the probable errors is considered.

TABLE XXXIX.

MIXED RELATIONS TEST—DIFFERENCE BETWEEN SCORES OF THE WHITE AND EACH OF THE FOUR CLASSES OF COLORED SUBJECTS, BY AGE AND SEX—RICHMOND

(Minus signs indicate greater scores by the colored subjects.)

Ages	12	13	14	15	16	17	Av.	P.E.
Test I.								
Boys—Pure	10.0	6.0	8.3	9.6	8.5	6.9	8.2	.4
Boys—Three-Fourths	7.5	1.3	—.5	13.6	6.8	6.3	5.8.	1.3
Boys—Mulattoes	4.0	10.9	5.5	2.9	6.8	—6.9	3.9	1.4
Girls—Pure	9.2	7.5	10.1	7.9	8.0	—1.6	6.8	1.0
Girls—Three-Fourths	9.0	7.4	11.3	2.2	1.6	3.8	5.9	1.2
Girls—Mulattoes	6.3	3.4	7.0	4.9	4.9	—9.7	2.8	1.5
Girls—Quadroons	..	7.3	—.3	3.0	1.6	—10.9	.1	1.8
Test II.								
Boys—Pure	11.8	8.3	11.3	4.0	9.0	8.1	8.7	.7
Boys--Three-Fourths	10.5	4.0	5.3	17.5	11.0	1.3	8.3	1.6
Boys—Mulattoes	5.5	11.5	9.1	—5.5	8.5	—4.9	4.0	2.2
Girls—Pure	13.4	13.3	11.0	8.8	3.2	1.0	8.4	1.5
Girls-Three-Fourths	12.6	6.3	13.5	2.3	2.0	5.8	7.1	1.4
Girls—Mulattoes	10.3	9.9	4.2	8.0	5.3	—7.5	5.0	1.6
Girls—Quadroons	..	12.9	.1	1.6	.9	—9.7	1.2	1.8
Test I.								
Boys								
Pure and Three-Fourths	9.2	4.7	5.1	12.3	8.1	6.6	7.7	.8
Mulattoes and Quadroons	4.0	8.8	2.4	2.9	6.8	—6.9	3.0	1.2
Girls								
Pure and Three-Fourths	9.1	7.4	10.8	5.0	3.0	—.4	5.8	1.2
Mulattoes and Quadroons	6.3	4.3	4.6	4.6	4.2	—10.0	2.3	1.4
Test II.								
Boys								
Pure and Three-Fourths	11.5	7.2	8.8	10.8	9.7	4.8	8.8	.7
Mulattoes and Quadroons	5.5	8.1	5.6	—6.4	8.5	—4.9	2.7	2.0
Girls								
Pure and Three-Fourths	12.8	8.8	12.5	6.0	2.3	2.1	7.4	1.4
Mulattoes and Quadroons	10.3	10.4	2.8	7.0	4.4	—8.1	4.5	1.7

TABLE XL.

MIXED RELATIONS TEST—DIFFERENCE BETWEEN SCORES OF THE WHITE AND EACH OF THE FOUR CLASSES OF COLORED SUBJECTS, BY GRADES—RICHMOND

(Minus signs indicate greater scores by the colored subjects.)

Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E
Test I.												
Pure	5.5	3.4	4.4	4.6	5.1	13.2	7.1	10.6	—5.5	5.8	5.4	
Three-Fourths	3.8	5.3	3.2	— .2	9.7	11.5	7.8	8.0	1.1	1.0	5.1	
Mulattoes	3.3	1.6	3.7	4.0	9.4	13.3	2.3	6.0	—6.9	— .7	3.6	1.
Quadroons	8.6	4.9	4.5	3.8	..	..	—1.8	5.8	—9.0	—6.3	1.3	1.
Test II.												
Pure	6.1	8.2	7.3	7.4	3.6	17.9	6.5	5.2	—3.2	1.8	6.1	
Three-Fourths	2.2	9.1	7.7	6.6	7.4	18.8	4.4	6.4	—2.4	5.9	6.6	
Mulattoes	5.7	5.9	4.1	8.6	4.4	16.0	.4	5.3	—3.8	— .3	4.6	1.
Quadroons	10.8	9.0	—2.7	14.6	..	..	—6.1	3.9	—4.3	—4.4	2.6	2.
Test I.												
Pure and												
Three-Fourths	4.7	4.5	3.8	2.6	8.3	12.3	7.4	9.0	—2.2	4.3	5.5	
Mulattoes and												
Quadroons	3.8	2.1	3.8	3.9	9.4	11.8	1.0	6.0	—7.6	—1.8	3.2	1.
Test II.												
Pure and												
Three-Fourths	4.3	8.7	7.5	7.0	5.8	18.4	5.6	6.0	—2.7	3.0	6.4	
Mulattoes and												
Quadroons	5.9	6.3	3.1	10.1	4.4	15.7	—1.8	5.0	—4.0	—1.1	4.4	1.

TABLE XLI.

MIXED RELATIONS TEST—PERCENTAGE OF THE SCORE OF THE WHITE OBTAINED BY EACH OF THE FOUR CLASSES OF COLORED SUBJECTS, BY AGE AND SEX—RICHMOND

Ages	12	13	14	15	16	17	Av.	P.E.
Test I.								
Boys—Pure	37	67	54	52	70	73	58.8	3.8
Boys—Three-Fourths	53	93	103	32	76	76	72.2	7.0
Boys—Mulattoes	75	39	69	85	76	127	78.5	6.3
Girls—Pure	52	58	56	66	68	108	68.0	4.5
Girls—Three-Fourths	53	59	51	90	94	81	71.3	5.9
Girls—Mulattoes	67	81	70	79	80	148	87.5	7.0
Girls—Quadroons	..	59	101	87	94	154	99.0	8.7
Test II.								
Boys—Pure	38	60	53	82	73	77	63.8	4.5
Boys—Three-Fourths	45	81	78	20	67	96	64.5	7.3
Boys—Mulattoes	71	45	62	125	74	114	81.8	8.7
Girls—Pure	39	37	56	70	90	96	64.7	7.3
Girls—Three-Fourths	43	70	46	92	94	79	70.7	6.3
Girls—Mulattoes	53	53	83	72	83	127	78.5	6.6
Girls—Quadroons	..	39	100	94	97	135	93.0	8.4
Test I.								
Boys—Pure and Three-Fourths	42	74	72	38	71	75	62.0	5.2
Mulattoes and Quadroons	75	51	87	85	76	127	83.5	5.6
Girls—Pure and Three-Fourths	52	59	53	78	88	102	72.0	5.9
Mulattoes and Quadroons	67	76	80	80	83	150	89.3	7.0

Ages	12	13	14	15	16	17	Av.	P.E.
Test II.								
Boys—Pure and Three-Fourths	39	66	63	51	71	86	62.7	4.2
Mulattoes and Quadroons	71	61	77	129	74	114	87.7	8.0
Girls—Pure and Three-Fourths	42	58	50	79	93	92	69.0	6.6
Mulattoes and Quadroons	53	50	89	76	86	129	80.5	7.3

TABLE XLII.

MIXED RELATIONS TEST—PERCENTAGE OF THE SCORE OF THE WHITE OBTAINED BY EACH OF THE FOUR CLASSES OF COLORED SUBJECTS, BY GRADES—RICHMOND

Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E.
Test I.												
Pure	58	76	74	73	72	47	72	62	124	75	73.3	2.8
Three-Fourths	71	62	81	101	46	54	69	71	95	96	74.6	3.9
Mulattoes	75	89	78	76	48	47	91	79	130	103	81.6	4.4
Quadroons	34	65	74	78	..	..	107	79	139	127	87.9	8.1
Test II.												
Pure	59	54	63	68	84	38	78	85	110	94	73.3	4.4
Three-Fourths	85	49	61	71	66	35	85	81	107	80	72.0	4.2
Mulattoes	62	67	79	63	80	45	99	84	112	101	79.2	4.2
Quadroons	28	50	113	37	..	..	121	89	113	115	83.2	10.2
Test I.												
Pure and Three-Fourths	64	68	78	85	54	51	70	68	110	81	72.9	3.1
Mulattoes and Quadroons	71	85	78	77	48	53	96	79	133	108	82.8	4.7
Test II.												
Pure and Three-Fourths	71	52	62	70	74	37	81	82	108	90	72.7	3.6
Mulattoes and Quadroons	61	65	84	56	80	46	106	85	112	104	79.9	4.7

TABLE XLIII.

MIXED RELATIONS TEST—PERCENTAGE OF EACH OF TWO CLASSES OF COLORED SUBJECTS REACHING OR EXCEEDING THE AVERAGE OF THE WHITE, BY AGE AND SEX AND BY GRADES—RICHMOND

Ages	12	13	14	15	16	17	..	..	..	..	Av.	P.E.
Test I.												
Boys—Pure and Three-Fourths	0	27	36	0	25	14	..	..	..	..	17.0	4.2
Mulattoes and Quadroons	25	12	40	29	25	100	..	..	..	..	38.5	7.3
Girls—Pure and Three-Fourths	8	23	8	25	33	56	..	..	..	..	25.5	4.2
Mulattoes and Quadroons	17	28	39	38	33	93	..	..	..	..	41.3	5.9
Test II.												
Boys—Pure and Three-Fourths	0	18	25	12	17	43	..	..	..	..	19.2	3.4
Mulattoes and Quadroons	25	12	33	86	25	100	..	..	..	..	46.8	10.1
Girls—Pure and Three-Fourths	8	7	12	36	56	44	..	..	..	..	27.2	6.3
Mulattoes and Quadroons	12	21	56	38	37	93	..	..	..	..	42.8	7.3

Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	..	..
Test I.												
Pure and Three-Fourths	15	14	38	29	20	0	17	14	67	40	25.4	3.6
Mulattoes and Quadroons	27	31	36	18	0	20	50	41	94	67	38.4	5.2
Test II.												
Pure and Three-Fourths	26	19	19	20	25	0	48	21	86	40	30.4	4.2
Mulattoes and Quadroons	10	20	31	17	43	0	76	29	89	60	37.5	6.0

We may conveniently average the percentages obtained by the boys, girls and grades in each class. When this is done the scores for the four classes of negroes, in terms of percentages of the score of whites, are as follows: Pure negroes, 66.7.; negroes three-fourths pure, 72.7; mulattoes, 82.5; quadroons, 93.4. The scores of the two-division classification, in the same terms, are: Pure and three-fourths negroes, 69.0; mulattoes and quadroons, 85.2. Averaging the percentages of boys, girls and grades that reached or exceeded the average score of whites, we find that 22.6 per cent. of the combined pure and three-fourths negroes, and 39.4 per cent. of the combined mulattoes and quadroons reached the white average.

In Test II the same situation occurs. The percentages of the score of the whites obtained by the pure, the three-fourths pure and the mulatto boys were 63.8, 64.5 and 81.8, respectively. For the girls, the percentages obtained by the pure negroes, the negroes three-fourths pure, the mulattoes and the quadroons were, respectively, 64.7, 70.7, 78.5 and 93.0. For the grades, the percentages, in the same order, were 73.3, 72.0, 79.2 and 83.2.*

The combined pure and three-fourths pure negroes and the combined mulattoes and quadroons scored, in Test II, the following respective percentages of the score of the whites: Boys—62.7 and 87.7; Girls—69.0 and 80.5; Grades—72.7 and 79.9.

*It should be noted that in the comparison by grades in Test II the pure negroes scored 1.3 per cent. higher than those three-fourths pure. In the grade comparison of the completion test the pure negroes also scored higher, by 2.0 per cent., than the three-fourths negroes. These are the only instances in which subjects with a greater amount of white blood were inferior to those with a lesser amount. As was previously pointed out, comparisons by grades are not as likely to reveal marked or reliable differences as are comparisons by ages; and as was also pointed out, the classes of pure and three-fourths pure negroes may not have been as well separated as the other classes.

The percentages of negroes reaching or exceeding the average of the whites in Test II were as follows: Boys—Pure and three-fourths, 19.2; Mulattoes and quadroons, 46.8. Girls—Pure and three-fourths, 27.2; Mulattoes and quadroons, 42.8. Grades—Pure and three-fourths, 30.4; Mulattoes and quadroons, 37.5.

If we average for Test II the percentages obtained by the boys, girls and grades in each class, we find that the pure negroes obtained 67.3 per cnt. of the score of the whites; that the three-fourths pure negroes obtained 69.1 per cent. of the score of the whites; that the mulattoes obtained 79.8 per cent. of the white score; and that the quadroons obtained 88.1 per cent. of the white score. The pure and three-fourths negroes, boys, girls and grades, scored 68.1 per cent. as high as the whites; the mulattoes and quadroons, boys, girls and grades, scored 82.7 per cent. as high as the whites. Averaging the percentages of boys, girls and grades that reached or exceeded the average white score, we find that 25.6 per cent. of the pure and three-fourths pure negroes reached the white average; and that the white average was reached by 42.4 per cent. of the mulattoes and quadroons.

The results of the completion test appear in Tables 44 and 45 and in Figures 22-24. The comparisons are made in Tables 46-50. These latter tables show the following results:

In the case of boys, the pure negroes obtained 65.3 per cent. of the score of the whites; the three-fourths pure negroes obtained 76.2 per cent.; and the mulattoes obtained 79.2 per cent. For girls, the percentages for the four classes of negroes, pure, three-fourths pure, mulattoes and quadroons, were, respectively, 74.3, 77.7, 81.8 and 95.8. For grades, the percentages were: Pure negroes, 81.4; three-fourths pure, 79.4; mulattoes, 82.9; quadroons, 92.2. When the pure and three-fourths pure negroes and the mulattoes and quadroons are grouped together, it appears that the pure and three-fourths pure boys scored 68.7 per cent. as high as the whites, and that the mulatto and quadroon boys scored 82.0 per cent. as high as the whites. The girls, pure and three-fourths pure, obtained 77.3 per cent. of the white score; and the girls, mulattoes and quadroons, obtained 83.5 per cent. of the white score. In the case of the grades, the pure and three-fourths pure negroes scored 80.2 per cent. as high as the whites, and the mulattoes and quadroons scored 83.4 per cent. as high.

TABLE XLIV.

COMPLETION TEST—SCORES OF COLORED SUBJECTS—RICHMOND—CLASSIFIED BY RACIAL PURITY, AGE AND SEX

Ages		10	11	12	13	14	15	16	17	18	19
Boys											
Pure	Av.	..	..	12.5	12.7	15.5	12.0	19.2	20.0	34.0	31.5
	A.D.	..	..	1.0	3.2	5.7	3.0	2.2	5.0	0.	3.5
Three-Fourths	Av.	..	8.6	15.0	17.3	14.7	10.2	16.0	36.3	..	..
	A.D.	..	2.6	5.0	3.0	6.7	3.7	6.0	3.6	..	..
Mulattoes	Av.	..	..	13.2	11.4	15.5	20.7	23.6	32.0	29.0	..
	A.D.	..	..	2.5	5.5	6.5	13.2	11.3	1.0	8.6	..
Quadroons	Av.	..	..	..	..	19.5	..	..	..	..	..
	A.D.	..	..	..	..	5.5	..	..	..	..	..
Girls											
Pure	Av.	..	..	12.7	13.8	16.4	19.2	23.0	27.0	..	..
	A.D.	..	..	3.2	4.4	3.5	4.5	2.0	9.4	..	..
Three-Fourths	Av.	..	..	13.5	15.4	15.0	22.6	27.1	22.5	23.5	..
	A.D.	..	..	1.3	2.8	4.7	3.3	4.1	2.5	4.5	..
Mulattoes	Av.	12.0	13.7	15.1	14.3	21.0	21.1	22.7	29.1	22.5	..
	A.D.	5.0	3.2	4.8	4.5	8.5	5.4	5.6	6.1	2.1	..
Quadroons	Av.	..	18.6	..	13.7	21.0	35.5	24.6	30.5	27.7	..
	A.D.	..	1.3	..	2.2	7.0	2.5	4.6	1.0	3.2	..
Boys—Pure and Three-Fourths	Av.	..	8.7	13.3	14.0	15.2	11.1	18.1	27.0	33.6	30.6
	A.D.	..	2.2	2.3	3.4	6.0	3.3	3.5	8.8	.6	2.6
Mulattoes and Quadroons	Av.	..	9.0	13.2	13.1	16.8	21.2	23.6	32.0	29.0	..
	A.D.	..	1.0	2.5	6.6	6.1	12.2	11.3	1.0	8.6	..
Girls—Pure and Three-Fourths	Av.	..	20.5	13.2	14.8	15.5	20.7	26.2	26.0	22.6	..
	A.D.	..	3.5	1.8	3.4	4.2	4.1	3.7	8.4	4.2	..
Mulattoes and Quadroons	Av.	12.0	15.8	15.1	14.2	21.0	23.3	23.1	29.5	24.6	29.0
	A.D.	5.0	3.1	4.8	3.9	8.0	6.5	5.5	4.7	3.6	0.

TABLE XLV.

COMPLETION TEST—SCORES OF COLORED SUBJECTS—RICHMOND—CLASSIFIED BY RACIAL PURITY AND GRADES

Grades		5A	5B	6A	6B	7A	7B	1A	2A	2B	3A	4A
Pure	Av.	10.6	14.0	14.2	19.5	17.8	17.2	17.8	23.8	29.0	29.3	26.8
	A.D.	2.4	1.4	3.7	2.0	5.2	3.7	4.3	4.4	4.0	7.6	9.7
Three-Fourths	Av.	11.9	13.4	13.3	13.5	14.8	16.0	21.5	27.5	25.8	28.7	27.6
	A.D.	5.5	3.0	3.7	2.5	4.2	5.2	5.6	5.8	5.2	3.7	2.0
Mulattoes	Av.	10.5	12.0	14.9	18.2	16.2	17.2	23.2	28.0	21.0	27.2	31.5
	A.D.	3.6	2.7	4.9	4.0	3.7	4.0	8.7	6.8	4.3	5.7	5.6
Quadroons	Av.	16.0	16.5	15.3	11.6	..	..	26.2	28.5	24.6	30.0	29.3
	A.D.	1.0	2.5	3.6	1.3	..	..	2.2	7.0	2.6	2.0	.3
Pure and Three-Fourths	Av.	11.2	13.6	13.8	16.5	16.0	16.5	19.4	26.2	26.7	29.0	27.1
	A.D.	4.1	2.4	3.6	3.2	4.7	4.3	4.7	5.5	5.0	5.1	7.1
Mulattoes and Quadroons	Av.	11.0	12.6	15.0	16.5	16.2	16.5	24.2	28.1	21.7	28.1	31.0
	A.D.	3.7	3.0	4.4	4.5	3.7	4.3	6.7	6.8	4.2	4.5	4.8

The percentages of negroes reaching or exceeding the average score of the whites were as follows: Boys—Pure and three-fourths pure, 19.0; Mulattoes and quadroons, 44.8. Girls—Pure and three-fourths pure, 23.2; Mulattoes and quadroons, 31.5. Grades—Pure and three-fourths pure, 25.9; Mulattoes and quadroons, 27.9.

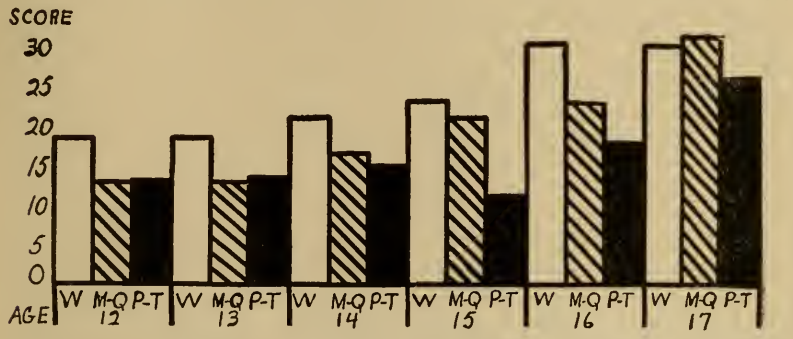

Fig. 22. Completion Test—Scores of Whites, Mulattoes and Quadroons Combined, and Pure and Three-Fourths Negroes Combined—Boys —Richmond.

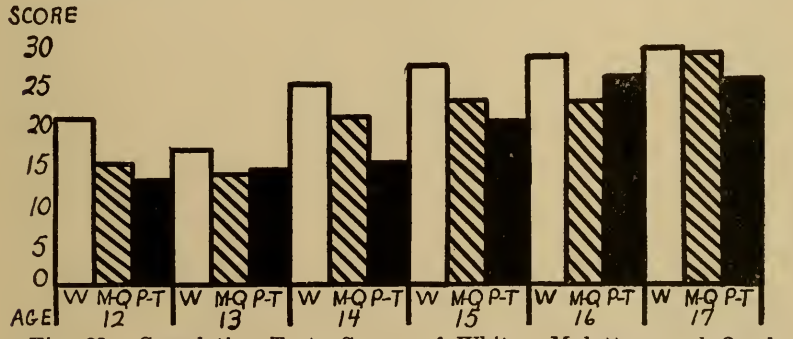

Fig. 23. Completion Test—Scores of Whites, Mulattoes and Quadroons Combined, and Pure and Three-Fourths Negroes Combined—Girls—Richmond.

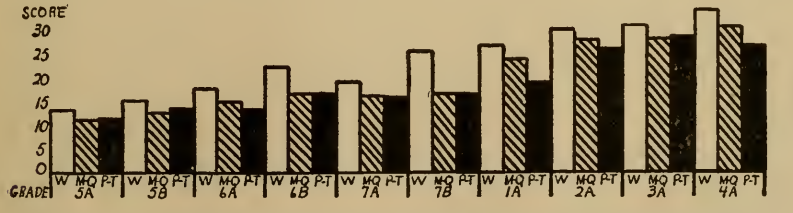

Fig. 24. Completion Test—Scores of Whites, Mulattoes and Quadroons Combined, and Pure and Three-Fourths Negroes Combined—Grades—Richmond.

If we average the percentages for boys, girls and grades, we find that the pure negroes scored 73.7 per cent. as high as the whites, the three-fourths pure negroes scored 77.8 per cent. as high, the mulattoes scored 81.3 per cent. as high, and the quadroons scored 94.0 per cent. as high as the whites. The pure and three-fourths pure negroes, combined, obtained 75.4 per cent. of the white score; the mulattoes and quadroons, combined, obtained 83.0 per cent. of the white score. In terms of the percentage of negroes reaching or exceeding the average of the whites, the results for boys, girls and grades are: Pure and three-fourths pure negroes, 22.7 per cent.; Mulattoes and quadroons, 34.7 per cent.

TABLE XLVI.

COMPLETION TEST—DIFFERENCE BETWEEN SCORES OF THE WHITE AND EACH OF THE FOUR CLASSES OF COLORED SUBJECTS, BY AGE AND SEX—RICHMOND

(Minus signs indicate greater scores by the colored subjects.)

Ages	12	13	14	15	16	17	Av.	P.E.
Boys								
Pure	6.2	6.0	5.7	11.4	11.5	10.7	8.6	.9
Three-Fourths	3.7	1.4	6.5	13.2	14.7	—5.6	5.6	2.0
Mulattoes	5.5	7.3	5.7	2.7	7.1	—1.3	4.5	.9
Girls								
Pure	8.2	3.2	8.9	8.5	5.9	3.0	6.3	.8
Three-Fourths	7.4	1.6	10.3	5.1	1.8	7.5	5.6	1.0
Mulattoes	5.8	2.7	4.3	6.6	6.2	.9	4.4	.6
Quadroons	..	3.3	4.3	—7.8	4.3	—.5	.7	1.5
Boys								
Pure and Three-Fourths	5.4	4.7	6.0	12.3	12.6	3.7	7.4	1.2
Mulattoes and Quadroons	5.5	5.6	4.4	2.2	7.1	—1.3	3.9	.8
Girls								
Pure and Three-Fourths	7.7	2.2	9.8	7.0	2.7	4.0	5.6	.9
Mulattoes and Quadroons	5.8	2.8	4.3	4.4	5.8	.5	3.9	.5

TABLE XLVII.

COMPLETION TEST—DIFFERENCE BETWEEN SCORES OF THE WHITE AND EACH OF THE FOUR CLASSES OF COLORED SUBJECTS, BY GRADES—RICHMOND

(Minus signs indicate greater scores by the colored subjects.)

Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E.
Pure	2.7	1.1	3.4	3.0	1.6	8.4	9.2	6.7	1.9	7.7	4.6	.7
Three-Fourths	1.4	1.7	4.8	9.0	4.6	9.6	5.5	3.0	2.5	6.9	4.8	.6
Mulattoes	2.8	3.1	2.7	4.3	3.2	8.4	3.8	2.5	4.0	3.0	3.8	.3
Quadroons	—2.7	—1.4	2.3	10.9	..	..	.8	2.0	1.2	5.2	2.3	.9
Pure and Three-Fourths	2.1	1.5	3.8	6.0	3.4	9.1	7.6	4.3	2.2	7.4	4.7	.6
Mulattoes and Quadroons	2.3	2.5	2.6	6.0	3.2	9.1	2.8	2.4	3.1	3.5	3.7	.4

TABLE XLVIII.

COMPLETION TEST—PERCENTAGE OF THE SCORE OF THE WHITE OBTAINED BY EACH OF THE FOUR CLASSES OF COLORED SUBJECTS, BY AGE AND SEX—RICHMOND

Ages	12	13	14	15	16	17	Av.	P.E.
Boys								
Pure	73	68	73	50	63	65	65.3	2.1
Three-Fourths	81	93	69	43	53	118	76.2	7.3
Mulattoes	71	62	73	88	77	104	79.2	3.8
Girls								
Pure	61	81	64	70	80	90	74.3	3.2
Three-Fourths	65	91	59	82	94	75	77.7	3.8
Mulattoes	72	84	83	76	79	97	81.8	2.1
Quadroons	..	81	83	128	85	102	95.8	5.7
Boys								
Pure and Three-Fourths	72	75	71	47	59	88	68.7	3.5
Mulattoes and Quadroons	71	71	79	90	77	104	82.0	3.5
Girls								
Pure and Three-Fourths	63	87	61	75	91	87	77.3	3.8
Mulattoes and Quadroons	72	84	83	84	80	98	83.5	1.8

TABLE XLIX.

COMPLETION TEST—PERCENTAGE OF THE SCORE OF THE WHITE OBTAINED BY EACH OF THE FOUR CLASSES OF COLORED SUBJECTS, BY GRADES—RICHMOND

Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	Av.	P.E.
Pure	79	93	81	86	92	68	66	78	94	77	81.4	2.0
Three-Fourths	89	89	76	59	76	63	80	90	92	80	79.4	2.3
Mulattoes	78	79	85	80	83	68	86	92	87	91	82.9	1.3
Quadroons	121	109	87	50	..	..	97	93	96	85	92.2	4.2
Pure and Three-Fourths	84	90	79	73	82	65	72	86	93	78	80.2	1.7
Mulattoes and Quadroons	82	83	86	73	83	65	90	92	90	90	83.4	1.6

TABLE L.

COMPLETION TEST—PERCENTAGE OF EACH OF TWO CLASSES OF COLORED SUBJECTS REACHING OR EXCEEDING THE AVERAGE OF THE WHITE, BY AGE AND SEX AND BY GRADES—RICHMOND

Ages	12	13	14	15	16	17	..	..	..	..	Av.	P.E.
Boys—Pure and Three-Fourths	17	18	36	0	0	43	..	..	..	..	19.0	4.9
Mulattoes and Quadroons	12	37	33	50	37	100	..	..	..	..	44.8	7.0
Girls—Pure and Three-Fourths	0	57	9	7	22	44	..	..	..	..	23.2	6.3
Mulattoes and Quadroons	25	30	28	31	25	50	..	..	..	..	31.5	2.0
Grades	5A	5B	6A	6B	7A	7B	1A	2A	3A	4A	..	..
Pure and Three-Fourths	25	39	14	12	33	0	10	29	57	40	25.9	3.6
Mulattoes and Quadroons	41	27	29	17	29	0	43	29	44	20	27.9	2.4

It is evident that the results from the completion test show the same general standing for the four classes of negroes that was brought out by the mixed relations test: the subjects with the greater amount of white blood were superior. And the size of the probable errors, particularly in the case of the two-division classification, renders the results reliable.

The standing of the various classes of negroes in the mixed relations tests, I and II, and in the completion test may be averaged. When this is done the figures show that the pure negroes scored 69.2 per cent. as high as whites; that the three-fourths pure negroes scored 73.2 per cent. as high as whites; that the mulattoes scored 81.2 per cent. as high as whites; and that the quadroons obtained 91.8 per cent. of the white score. The pure and three-fourths pure negroes, combined, obtained 70.8 per cent. of the score of the white subjects; the mulattoes and quadroons, combined, obtained 83.6 per cent. of the score of the whites.

This suggests that it is sometimes questioned as to how far external appearances are indicative of racial purity. It is held that a certain proportion of the offspring of mixed races will not show the blood characteristics which their heredity would seem to warrant. This may be true, and the Mendelian laws of inheritance may furnish a basis for such variation. But in the main, children conform closely to the characteristics of their parents in all respects, and such variations as occur will offset each other in any considerable number of persons, and leave the group type predominant. Certainly the results here obtained indicate that the correlation between skin color and racial purity is high.

There was apparently nothing except native racial ability that could bring about the results found herein for the different classes of negroes. It is possible, indeed, that the lighter negroes were of a better social class than the darker. But if this was true, it must be that the mixed bloods attained to a better social standing because of their greater capacity. For among negroes in general there are no considerable social distinctions based on color. A colored person is a colored person, whether he be mulatto or negro, and all mingle together as one race. Pyle, in a quotation previously given, reports that of the negroes tested by him, those of better social class made higher scores. And it would not be surprising if it were found that mulattoes constituted the bulk of the superior

social class, and only a minority of the inferior class. It would be surprising, in view of the results found here, if it were otherwise. But any such distribution should be ascribed to the greater inherent capacity of negroes of lighter skin.

No social or material gulf, such as that which separates the white and colored races in this country, is to be found among the negroes themselves. Such distinctions as there are, and however based, are very minor as compared with the great inter-racial distinction. And to a marked degree the general environment of colored children is the same for all. With no great variations, they all attend the same schools, live in the same neighborhoods, grow up in the same home surroundings, share the same cultural advantages, meet the same opportunities, undergo the same experiences. They live almost in a world of their own, which is but one stratum or level of our mixed society. This is particularly true of the selected group of negroes found in the upper grades of the schools. And yet the differences, as revealed by the mental tests, between the pure negroes and the mulattoes, on the one hand, and the mulattoes and the whites, on the other, are not unlike in amount. The mulattoes who, with the pure negroes, live in the comparatively uniform colored environment, which is so greatly different from the white environment, are yet almost as near to the whites as to the pure negroes when put to psychological tests. This fact becomes especially noteworthy when it is considered that the greater number of mulattoes are probably descended from an inferior element among the whites, and probably from an inferior element among the negroes also.

Such considerations indicate that it is a native ability and not an acquired capacity that differentiates the mixed and the pure negroes, and that skin color is its outward sign. They also indicate that the tests used are primarily tests of native capacity, and that consequently the differences found between whites and negroes as a whole are innate differences.

Comparative Variabilities

In recent years a number of writers have called attention to the importance of differences in the variability of groups from their central tendencies. It is pointed out that two groups, as two races or two sexes, may be of the same average capacity, but that if one of these groups is more variable than the other, certain significant differences will appear.

The more variable group will produce a greater number of individuals of very high capacity and also a greater number of very low capacity; within the less variable group there will be more conformity to the group type and less divergence toward the extremes. In the former case there will be a greater number of geniuses and of moral heroes than in the latter, and also a greater number of idiots and of moral degenerates. This will result in marked differences in the relative attainments of the groups as wholes. Progress depends upon the few who stand out from the crowd and invent new and better ways of doing things. The few conceive and the many appropriate their conceptions, in all realms of human activity. In mechanical and material progress, in science, in art, in literature, in religion, in politics, it is the geniuses who make progress possible. And it follows that a variable group, other things being equal, will achieve a higher type of civilization than one which is less variable.

In discussing this matter, Woodworth writes as follows: "The distribution of a trait is for some purposes more important than the average. Let us suppose, for instance, that two groups were the same in their average mental ability, but that one group showed little variation, all of its members being much alike and of nearly the average intelligence, while the other group showed great variability, ranging between the extremes of idiocy and genius. It is evident that the two groups, though equal on the average, would be very unequal in dealing with a situation which demanded great mental ability. One master mind could supply ideas for the guidance of the group, and his value would far outweigh the load of simpletons which the group must carry." ('10, p. 2).

Thorndike ('10) writes to the same effect. He claims that men are more variable than women, and that on this account the greater part of the genius and the stupidity of the world is found among men. In discussing racial capacity, he says: "The comparison in variability is, as in the case of the sexes, of great practical importance. The ability of a hundred of its most gifted representatives often counts more for a nation's or a race's welfare than the ability of a million of its mediocrities." '10, pp. 53-54).

While the importance of variability is thus recognized, there is as yet very little evidence bearing upon the relative variability of diffrent races. In summing up the psychologi-

cal results available in 1910, Woodworth wrote as follows: "The dead level of intelligence, which is sometimes supposed to obtain among backward races, is not borne out by psychological tests, since individual differences are abundantly found among all races, and, indeed, the variability of different groups seems, from these tests, to be about on a par." ('10, p. 15). Hrdlicka ('98) and Le Bon ('98), as quoted in Chapter I, claim that in physical traits whites are more variable than negroes. Strong ('13) states, as previously quoted, that the lighter-colored negroes among the 122 tested by her were more variable than those of darker color. Mayo, after discussing the variability of whites and negroes, writes as follows concerning the groups studied by him: "In our own study of the two groups of high school pupils, however, the fact of greater racial mental variability is not at all pronounced, though the whites were slighly more variable. The average deviation of the white group from their mean scholastic attainment was 7, while that of the colored group was 6.5." ('13, p. 69). In addition to the somewhat inconclusive findings of these writers, there do not seem to be any reliable measurements bearing upon the problem.

At present we have no good method of measuring the variability of groups. Of course the actual variabilities may be compared in such terms as the average deviation or the probable error. But this will be misleading if the groups differ considerably in their standing in the capacity in question. A higher average standing generally implies a greater average deviation. If an average score of 30 has an average deviation of 10, an average score of 20 in the same trait will have a smaller deviation. The actual size of the deviations must therefore be considered in connection with the size of the average scores.

In order to overcome this difficulty, Pearson has proposed that the deviations should be divided by the group averages before a comparison is made. But this procedure is open to the objection that it is not certain that deviations vary in proportion to the size of the central tendencies from which they are derived. There is reason to believe that they more nearly vary in proportion to the size of the square roots of the central tendencies. Accordingly Thorndike ('04) has suggested that actual variabilities should be divided by the

square roots of averages rather than by the averages themselves.

Since there is thus no single reliable measure of variability, our procedure in the following comparisons will be to set forth the average deviations, the Pearson coefficients, i.e., the deviations divided by the averages, and the Thorndike coefficients, i.e., the deviations divided by the square roots of the averages. And since none of these methods is wholly free from objection, the average of all three is presented in each case as a combined coefficient.

The variabilities are given in this manner for the various classes of colored subjects in terms of percentages of the variability of white subjects of the same ages or grades. The variability of the whites is therefore to be considered as 100 in all cases. The figures for the separate ages and grades are omitted for the sake of brevity, and only the averages of the different ages and grades are presented. The actual deviations from which the figures are derived are shown in the tables in this and the foregoing chapters which set forth the scores. Only the Richmond pupils are treated in the comparisons.

Table 51 shows the relative variabilities of the different classes of subjects in the age at which they reached the school grades studied. From the averages it appears that the pure negroes, the three-fourths negroes, the mulattoes and the quadroons were 66, 91, 87 and 74 per cent., respectively, as variable as the whites; that the pure and three-fourths negroes combined and the mulattoes and quadroons combined were, respectively, 83 and 95 per cent. as variable as the whites; and that the colored pupils of all classes combined

TABLE LI.

AGES—VARIABILITY OF THE COLORED SUBJECTS IN PERCENTAGES OF THE VARIABILITY OF THE WHITE—RICHMOND—BY GRADES

	Average Deviation	Pearson Coefficient	Thorndike Coefficient	Av.
Pure Negroes	68	65	66	66
Three-Fourths	92	90	91	91
Mulattoes	88	86	87	87
Quadroons	74	74	74	74
Pure and Three-Fourths	85	81	82	83
Mulattoes and Quadroons	96	94	95	95
All colored	90	87	89	89

had 89 per cent. of the white variability. The average deviations, the Pearson and the Thorndike coefficients all give practically the same result: the negroes were less variable than the whites.

The uniform behavior of the figures for age variability is in contrast with the more uncertain nature of those which show the variability of the scores in the tests. Tables 52-55 make the test comparisons. Relying upon the averages, it appears that the pure negro boys are 72, 106 and 63 per cent. as variable as the white boys in the Mixed Relations Test I, the Mixed Relations Test II and the completion test, respectively; that the pure negro girls are 104, 98 and 84 per cent. as variable as the white girls in these respective tests; and that the pure negroes when compared by grades are 85, 85 and 89 per cent. as variable as the whites in these tests. The figures which show the relative variability of the three-fourths pure negroes in the three tests, in the order mentioned, are as follows: Boys—69, 86 and 82 per cent.; Girls—101, 88 and 56 per cent.; Grades—99, 110 and 85 per cent. The relative variability of the mulattoes in the three tests is: Boys—90, 87 and 115 per cent.; Girls—123, 104 and 102 per cent.; Grades—109, 102 and 100 per cent. The percentages for the quadroons are: Girls—118, 84 and 57; Grades—69, 44 and 47. These figures are not subject to any sure interpretation. But it appears to be very probable that the pure and the three-fourths pure negroes are less variable than whites, and that the quadroons are also less variable. The comparatively small number of quadroons, however, may be a factor here. The mulattoes appear to have a variability as great as that of the whites.

TABLE LII.

MIXED RELATIONS TEST—VARIABILITY OF THE COLORED SUBJECTS IN PERCENTAGES OF THE VARIABILITY OF THE WHITE—RICHMOND

	Test I.			
	Average	Pearson	Thorndike	
Boys	Deviation	Coefficient	Coefficient	Av.
Pure Negroes	54	92	71	72
Three-Fourths	58	81	68	69
Mulattoes	79	101	90	90
Pure and Three-Fourths	65	106	82	84
Mulattoes and Quadroons	89	107	97	98
All colored	90	124	106	107
Girls				
Pure Negroes	85	125	103	104

	Average Deviation	Pearson Coefficient	Thorndike Coefficient	Av.
Three-Fourths	85	118	100	101
Mulattoes	114	131	123	123
Quadroons	117	118	118	118
Pure and Three-Fourths	88	121	103	104
Mulattoes and Quadroons	114	128	121	121
All colored	103	123	112	113
Grades				
Pure Negroes	72	98	84	85
Three-Fourths	86	114	98	99
Mulattoes	98	120	109	109
Quadroons	64	73	69	69
Pure and Three-Fourths	81	111	95	96
Mulattoes and Quadroons	94	112	103	103
All Colored	89	114	102	102
	Test II.			
Boys				
Pure Negroes	84	130	104	106
Three-Fourths	68	106	85	86
Mulattoes	78	96	86	87
Pure and Three-Fourths	85	135	108	109
Mulattoes and Quadroons	92	105	99	99
All Colored	101	128	114	114
Girls				
Pure Negroes	78	120	96	98
Three-Fourths	73	104	88	88
Mulattoes	92	117	104	104
Quadroons	81	87	84	84
Pure and Three-Fourths	83	120	100	101
Mulattoes and Quadroons	86	107	96	96
All Colored	89	114	101	101
Grades				
Pure Negroes	72	99	85	85
Three-Fourths	93	129	109	110
Mulattoes	91	115	101	102
Quadroons	40	48	44	44
Pure and Three-Fourths	85	117	100	101
Mulattoes and Quadroons	84	105	95	95
All Colored	87	115	100	101

TABLE LIII.

COMPLETION TEST—VARIABILITY OF THE COLORED SUBJECTS IN PERCENTAGES OF THE VARIABILITY OF THE WHITE—RICHMOND

Boys	Average Deviation	Pearson Coefficient	Thorndike Coefficient	Av.
Pure Negroes	50	77	62	63
Three-Fourths	71	94	82	82
Mulattoes	102	129	114	115
Pure and Three-Fourths	68	98	82	83

	Average Deviation	Pearson Coefficient	Thorndike Coefficient	Av.
Mulattoes and Quadroons	100	121	111	111
All Colored	85	109	97	97
Girls				
Pure Negroes	71	97	83	84
Three-Fourths	49	63	56	56
Mulattoes	92	113	102	102
Quadroons	56	57	57	57
Pure and Three-Fourths	68	89	78	78
Mulattoes and Quadroons	89	106	98	98
All Colored	71	89	81	80
Grades				
Pure Negroes	80	98	89	89
Three-Fourths	75	95	84	85
Mulattoes	91	109	100	100
Quadroons	45	49	47	47
Pure and Three-Fourths	82	102	93	92
Mulattoes and Quadroons	84	100	93	92
All Colored	84	102	93	93

TABLE LIV.

MAZE TEST—VARIABILITY OF THE COLORED SUBJECTS IN PERCENTAGES OF THE VARIABILITY OF THE WHITE—RICHMOND

	Average Deviation	Pearson Coefficient	Thorndike Coefficient	Av.
Boys—All Colored				
Touches	87	126	104	106
Distance	91	109	100	100
Girls—All Colored				
Touches	105	174	136	138
Distance	121	153	136	137
Grades—All Colored				
Touches	82	118	100	100
Distance	91	105	100	99

TABLE LV.

CANCELLATION TEST—VARIABILITY OF THE COLORED SUBJECTS IN PERCENTAGES OF THE VARIABILITY OF THE WHITE—RICHMOND

	Average Deviation	Pearson Coefficient	Thorndike Coefficient	Av.
Boys—All Colored				
Omissions	172	89	122	128
Cancellations	103	105	104	104
Girls—All Colored				
Omissions	153	113	133	133
Cancellations	127	113	120	120
Grades—All Colored				
Omissions	167	106	133	135
Cancellations	103	94	98	98

The combined pure and three-fourths pure negroes, when compared with whites, have relative variabilities as follows in the Mixed Relations Test I, the Mixed Relations Test II and the completion test, respectively: Boys—84, 109 and 83 per cent.; Girls—104, 101 and 78 per cent.; Grades—96, 101 and 92 per cent. The figures for the combined mulattoes and quadroons show that they have the following relative variabilities in the three tests: Boys—98, 99 and 111 per cent.; Girls—121, 96 and 98 per cent.; Grades—103, 95 and 92 per cent. It is thus probable that the mulattoes and quadroons are slightly more variable than the pure and three-fourths pure negroes, but here again the results are not certain. Both classifications appear to have not far from the white variability.

When all classes of negroes are grouped together and compared with whites, they show the following relative variabilities in the three tests mentioned: Boys—107, 114 and 97 per cent.; Girls—113, 101 and 80 per cent.; Grades—102, 101 and 93 per cent. The colored subjects as a whole had a greater rather than a less variability than the white.

This last statement is reinforced by the figures from the maze and cancellation tests. In the maze test, the colored boys were 106 and 100 per cent. as variable as the white boys in touches and distance respectively; the colored girls were 138 and 137 per cent. as variable as the white girls in touches and distance; the colored grades were 100 and 99 per cent. as variable as the white in touches and distance. In the cancellation test, the figures showing the relative colored variability in omissions and cancellations, respectively, were: Boys—128 and 104 per cent.; Girls—133 and 120 per cent.; Grades—135 and 98 per cent. The negroes in these tests were more variable than the whites, all classes of colored subjects being grouped together.

In addition to these figures from Tables 52-55, attention should be called to those in Tables 39-43 and 46-50 as indications of the relative variability of the different sub-classes of negroes. These tables give the probable errors of the scores made by the various classes of negroes when compared with whites. The probable errors show a marked uniformity in being smaller for the darker-colored negroes and larger for those of lighter color. That is, they show that in the case of the darker negroes the separate age and grade groups varied less with respect to their own average difference from

corresponding white age and grade groups. Now this greater constancy among the differences for the separate ages and grades of darker negroes might have been due to chance if it had occurred only infrequently. For example, if the scores of four white grades are 40, 50, 40 and 50, and the scores of four corresponding colored grades are 20, 30, 20 and 30, the differences between these grades will be 20, 20, 20 and 20, and the probable error will be zero. But if the four corresponding colored grades have scores of 30, 20, 30 and 20, the differences will be 10, 30, 10 and 30, and the probable error will be 5. The actual scores and the actual average differences are the same in the two cases, but a chance arrangement in the correspondence of the scores alters the probable errors. And if the difference from the whites of first the lighter and then the darker negroes had the smaller probable error, we could attach no significance to the fact. But the smaller probable error in the case of the darker-colored negroes occurs with a uniformity which cannot be ascribed to chance. And we must suppose that it is due to a greater constancy in the scores of the individuals within the darker age and grade groups themselves. This greater constancy of the individual scores would be reflected in the greater constancy of the separate group scores and hence in the smaller probable error of such scores. And consequently we have a further indication of the smaller variability of the negroes of comparatively pure blood.

On the whole, it appears that the pure negroes, the three-fourths pure negroes and the quadroons varied less than did the whites; that the mulattoes did not differ from the whites in variability; that the combined pure and three-fourths pure negroes and the combined mulattoes and quadroons had not far from white variability, and that the latter class varied slightly more than did the former; that the colored subjects of all classes together had a greater variability than the white. But these conclusions are only approximately certain. The average coefficients upon which they are based are not uniform in their import, and the separate coefficients taken by themselves are not more so. If we consider only the actual variabilities, the white are clearly more variable than the colored subjects, except in the cancellation test, and the subclasses of negroes, particularly those of darker color, are much less variable than the negroes as a whole. It is interesting to note that the colored girls had generally a greater

variability than the colored boys when compared with whites.

Figures 25-28 are inserted to show graphically the relative distribution of the two races in one test—the completion. This distribution is fairly typical of that found in the other tests. All classes of negroes are included. In the graphs the boys and girls are treated separately, but the elementary pupils are grouped together, as are the high school pupils.

Fig. 25. Completion Test—Distribution of the Scores of White and Colored Subjects—Grammar-Grade Boys—Richmond.

The solid and the broken lines indicate the scores of the white and the colored subjects, respectively.

Fig. 26. Completion Test—Distribution of the Scores of White and Colored Subjects—Grammar-Grade Girls—Richmond.

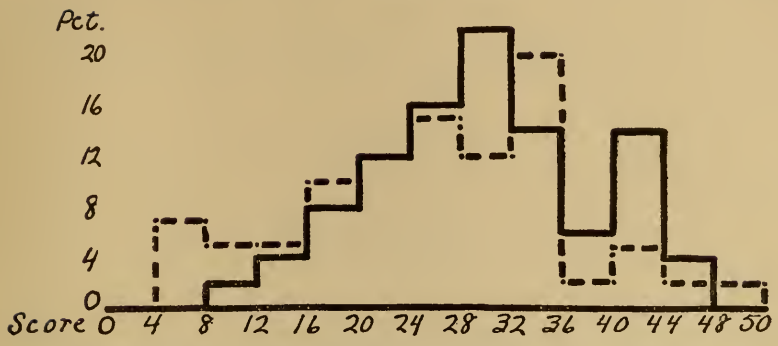

Fig. 27. Completion Test—Distribution of the Scores of White and Colored Subjects—High School Boys—Richmond.

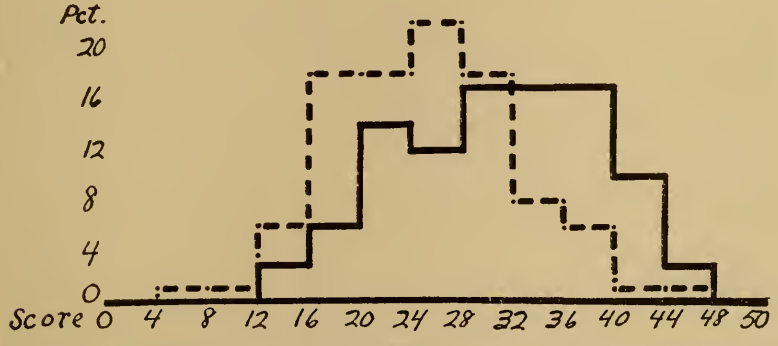

Fig. 28. Completion Test—Distribution of the Scores of White and Colored Subjects—High School Girls—Richmond.

This procedure is permissible on the ground that within either the elementary or the high school grades tested the pupils do not differ significantly from age to age, as was shown in Chapter III. The number of pupils obtaining a given score was in all cases reduced to a percentage of the total number in the distribution.

From the graphs it appears that the white elementary boys and the white elementary girls are probably more variable than the colored, but that the colored subjects, particularly the boys, are probably the more variable in the high school. But no certain conclusion as to racial variability can be reached. It appears more certain that the boys are more variable than the girls. Incidentally, attention may be called to the comparison of racial ability revealed by the graphs. They make plain the extensive overlapping of the scores of the whites and negroes. Even where there is a great differ-

ence between the average scores of the two races and where only a small percentage of the negroes reaches or exceeds the average of the whites, the overlapping is great and should not be overlooked.

It may finally be remarked with regard to the relative variability of whites and negroes, that it would not be at all surprising if groups of so-called negroes were definitely shown to be more variable than comparable groups of whites. For the groups that are generally called negroes are composed of individuals ranging from pure negroes to persons almost white, and it would be reasonable to suppose that such groups would vary more than would homogeneous white groups. They are not composed of one race but of two. Of course it may be that the variability of the negro race falls entirely within the extremes of variability of the white, but this would not offset the greater average deviation that would be caused by the relative tendency to bi-modality, or at least to flatness of distribution, in a mixed negro and mulatto group. This consideration should be taken into account in all studies of the variability of whites and negroes. It would be interesting and useful to know whether colored people, negroes and mulattoes together, vary as much as do whites. But this information would not inform us as to the relative variability of the white and negro races.

CHAPTER V.

CONCLUSION

By way of summary of the various considerations which have come to light in this study, we may say that the average performance of the colored population of this country in such intellectual work as that represented by the tests of higher capacity, appears to be only about three-fourths as efficient as the performance of whites of the same amount of training. It is probable, indeed, that this estimate is too high rather than too low. The groups of whites and negroes studied are not typical of the white and colored populations in general; their ability is undoubtedly considerably above the average. But the negroes were probably farther above their racial average than were the whites. If one were to test the capacity of the unselected masses of negroes, with their much smaller percentage of white blood, and make a comparison with unselected masses of whites, the results would almost certainly reveal greater racial differences than those found herein.

All of the experimental work which has been done has pointed to the same general conclusion. The bulk of it has shown a greater racial difference than that found in Richmond, and has been more comparable in its results with the findings recorded for Fredicksburg and Newport News. The opinions of the great majority of those who have come into contact with the negro, and the views of nearly all of those who have studied the question from standpoints other than experimental, are in substantial agreement with the quantitative evidence.

In the present state of the advancement of science it does not seem possible to make adequate tests of those vastly important qualities which are included in the feeling and dynamic, rather than in the intellectual, side of mental life. It is the common opinion that the negro differs more from the white in such traits than in intellect proper. His emotions are generally believed to be strong and volatile in their mani-

festations; whether this is due to their intrinsic nature or to a lack of restraint, is an untouched problem. Instability of character is ascribed to the negro, involving a lack of foresight, an improvidence, a lack of persistence, small power of serious initiative, a tendency to be content with immediate satisfactions, deficient ambition. But the evidence that such characteristics constitute a true racial difference cannot be called conclusive, and the psychological causes underlying them have not been adequately investigated. Along with high emotionality and instability of character, defective morality is held to be a negro characteristic. This is as subject to debate as are the other qualities, though it is apparently supported by social statistics.* It may be that the total circumstances of his life are such as would lead to immorality even were the negro possessed of the psychic nature of the white man.

On the other hand, while it is impossible to arrive at an exact knowledge of the relative amounts of such important but intangible traits in the two races, it must be said that the evidence of experience and observation cannot be disregarded. Such evidence is often wholly unscientific and worthless, but not always so. Strong and changing emotions, an improvident character and a tendency to immoral conduct are not unallied. They are all rooted in uncontrolled impulse. And a factor which may tend to produce all three is a deficient development of the more purely intellectual capacities. Where the implications of ideas are not apprehended, where thought is not lively and fertile, where meanings and consequences are not grasped, the need for the control of impulse will not be felt. And the demonstrable deficiency of the negro in intellectual traits may involve the dynamic deficiencies which common opinion claims to exist.

The available evidence indicates that in the so-called lower traits there is no great difference between the negro and the white. In motor capacity there is probably no appreciable

*Statistics concerning the sexual immorality, as indicated by illegitimate births, of whites and negroes in the District of Columbia have recently been published by Ottenberg ('15). In 1912 and 1913 the total of all births reported to the Health Department was 13,910, of which number 1374, or approximately 10 per cent. were illegitimate. There were four times as many illegitimate births of colored as of white children reported, and yet the colored population was only about one-half as large as the white. Statistics showing the very much larger percentage of negroes than of whites convicted of crime are too well known to require quotation here.

racial difference. In sense capacity, in perceptive and discriminative ability, there is likewise a practical equality. It is in the central elaborative powers upon which thought more directly depends that differences exist, not in the simpler receptive and discharging functions. It seems as though the white type has attained a level of higher development, based upon the common elementary capacities, which the negro has not reached to the same degree. From the nature of the mental differences, one would infer that such neural differences as may be found will probably be mainly in the constitution of the cortical neurones, rather than elsewhere in the nervous system.

While the intellectual performance of the general colored population is approximately 75 per cent. as efficient as that of whites, this figure is not true for different classes of negroes. It is probably correct to say that pure negroes, negroes three-fourths pure, mulattoes and quadroons have, roughly, 60, 70, 80 and 90 per cent., respectively, of white intellectual efficiency. If it were possible to distinguish these four classes of negroes so accurately as to avoid overlapping, it is probable that the differences revealed by tests would be greater rather than less than those indicated by the figures.

The educational significance of the available facts is difficult to determine. The negro's intellectual deficiency is registered in the retardation percentages of the schools as well as in mental tests. And in view of all the evidence it does not seem possible to raise the scholastic attainment of the negro to an equality with that of the white. It is probable that no expenditure of time or of money would accomplish this end, since education cannot create mental power, but can only develop that which is innate.

The movement toward industrial education for the negro finds sanction in the studies of his psychology. Without great ability in the processes of abstract thought, the negro is yet very capable in the sensory and motor powers which are involved in manual work. And economy would indicate that training should be concentrated upon those capacities which promise the best return for the educative effort expended. Social conditions, of course, have been the main incentive to the growth of industrial education among negroes,

and in themselves they are sufficient reason for emphasizing an intensely practical training. But the mental nature of the negro gives reason for believing that this sort of education is the only one which will avoid great waste. Diminishing educational returns will be more serious in the intellectual than in the industrial education of the negro.

There is need of experiment to determine the relative ability of colored and white persons in the intelligent handling of concrete materials. All of the experiments so far undertaken have dealt with thought material as represented by words rather than by objects. Tests which involve mechanical manipulations have not been tried. It is possible that reasoning based upon objects present to sense may not correlate highly with reasoning based upon the mental representations of objects, and that the negro may therefore more nearly approach the white in the former than he does in the latter sort of thinking. The writer expects to undertake a series of experiments upon the comparative intellectual ability of the two races in mechanical tests, and if the difference between them is less than that revealed by tests of a more literary nature, additional sanction will be given to the reasonableness of industrial education.

But while it thus appears that for the colored population as a whole a manual is more practicable than a literary education, it must not be overlooked that there are individual colored persons of great ability. The widely held doctrine that the negro's mental growth comes to a comparative standstill at adolescence does not find corroboration in the results of tests. The groups so far tested, indeed, show that after adolescence the negro more nearly approachs the white than before. This is probably due to the fact that the adolescent negroes tested are a more closely selected group than those who have not reached adolescence. The adolescent negroes in the schools have more white blood in them. And racial differences at adolescence may exist in the feeling and dynamic sides of mental life, which have not been tested. If there are such differences they will most likely appear just here. But so far as has been demonstrated, the negro's intellectual development proceeds as rapidly after puberty as does that of the white. Then, too, the variability of the negroes and the overlapping of ability in the two races, make it necessary to expect very able colored persons to be found in every

large group. In the main, the most capable colored individuals will be mulattoes, although there are fewer mulattoes than pure negroes.

Since comparisons between races are frequently made in terms of the number of eminent men produced by each, it is interesting to make a rough computation as to the number of pure negroes, mulattoes and whites that may be expected to demonstrate great ability in the United States. This computation lays no claim to other than approximate validity. It is based upon the "law of deviation from an average" as employed by Francis Galton ('92, p. 22 ff.), and in making it the variability of each class of the population is considered as being the same. Of course, if the variability of pure negroes is less than that of whites, as is probable, the number of very able negroes will be less than is indicated by the following figures.

We may take as our standard of eminence the one chosen by Galton, viz., attainment so great that it is reached by only one man in 4300. In each million men there are 248 persons of this standing. Now there are approximately 18,000,000 white men, 1,600,000 pure negro men and 400,000 men who are mulattoes in this country. Consequently, if all three classes have the same ability, there will be 4464 eminent white men, 397 eminent pure negroes and 99 eminent mulattoes.

But if we assume that pure negroes average 75 per cent. of white ability and that mulattoes average 87.5 per cent. of white ability, we find the following situation growing out of the law of deviation from an average.* In a million of each class of men, there will be 248 whites, 15 mulattoes and 1 pure negro who will attain the above-mentioned degree of eminence. Considering the number of these three classes

*To carry out the computation based upon this assumption it is necessary to postulate a zero point of ability, and the capacity of the lowest idiot is taken as this zero point. That this may be done without violence to the facts is indicated by the descriptions of idiocy given in works on mental deficiency. Thus Tredgold ('08) writes of profound idiots that their brief existence may almost be called vegetative. They are devoid of instincts, they lie huddled in an ante-natal posture, food must be placed in their mouths, and their life activities hardly extend beyond respiration, assimilation and excretion. "They have eyes, but they see not; ears, but they hear not; they have no intelligence and no consciousness of pleasure or pain; in fact, their mental state is one entire negation." ('08, p. 171).

in the total population, there will be 4464 eminent whites, 6 eminent mulattoes and 2 eminent negroes in the United States.

These figures are suggestive. If we take it that there are 4464 eminent white men in America, there are certainly not 397 pure negroes and 99 mulattoes of the same degree of eminence. There are more nearly 6 mulattoes and 2 pure negroes to 4464 eminent whites. Definite figures are not obtainable, but such lists of men of achievement as have been compiled accord with the latter set of figures far more closely than with the former.

Of course it may be held that social conditions make it impossible for colored ability to assert itself. There may be potentially eminent men among the negroes who are not able to attain their commensurate achievement on account of environmental conditions. On the other hand, it may be said that the best opinion, as that of Galton, holds that eminence is independent of circumstance; that innate power can be neither crushed nor created by adverse or favorable influences. And it may be further contended that ability among negroes is all the more readily recognized just because of their generally low level of racial attainment. A man of mark among them stands out becauuse of his rarity, and his opportunities are increased because of this recognition.

As an indication of the greater ability of mulattoes than of pure negroes, it may be remarked that such lists as we have of colored leaders, e.g., those quoted in Chapters I and IV, show a larger proportion of men of mixed than of unmixed blood. And this despite the fact that there are probably four times as many pure negroes as mulattoes in the country.

Although the available facts are very few and inexact, such as they are they serve to justify rather than to controvert the deductions from the law of variability. And in so far as the deductions are borne out, the assumed racial inequality upon which they are based is confirmed.

There are few more controversial subjects than that of the outlook for the negro race in America, and it is not within the province of this monograph to attempt a discussion of the topic. But it may not be out of place to mention certain considerations that have presented themselves. Conclusions concerning the negro's possibilities in this country are fre-

quently drawn from a study of the various small negro republics, such as Haiti, Santo Domingo and Liberia, and opinions so arrived at are not without their value. Yet there are differences between the position of the American negro and that of the negro in the isolated states in question. It should be noticed that the number of American negroes is larger than the number in any of the negro republics. Progress depends upon the size of a group as well as upon its average capacity. Other things being equal, the larger group will produce more very able individuals, and such individuals, as was previously pointed out, furnish the ideas and the inspiration for the whole group. And the American negro is in much closer contact with the white race than are the inhabitants of the independent negro countries. This contact gives him the advantage of white encouragement, achievement, example and control, and enables him to appropriate to his own use the products of white genius. Races, or nations, between which there is free intercommunication make greater progress than do isolated peoples, for the results of the ability of one race are more readily taken over and incorporated into the life of the other. Hence we may reasonably expect the colored people of America to show a higher type of civilization than those of their race who are differently situated, even though the native ability of the negro is everywhere the same.

In this connection Thorndike writes as follows: "The origination of advances in civilization is a measure of ability, but the abilities that have originated them have probably been confined to a very few men. A race that originated none of them may now possess them all. Even if a race has been completely isolated, its civililzation has been originated by only a few of its members; and the chance of men of great gifts being born is the result not only of the central tendency of a race and its variability, but also of its size. Other things being equal, there is a far greater chance of the birth of a man of great ability in a tribe of a million than in one of a thousand. Since one such man may add to the knowledge and improve the habits of the entire group regardless of its size, civilization will progress more rapidly in large than in small groups, in a condition of isolation.

"The civilized races have not remained isolated and have got most of their civilization from without. Of ten equally

gifted races in perfect intercourse each will originate only one-tenth of what it gets. The original nature of the Germans of to-day is not much different from that of their ancestors in the time of Tacitus, and their progress in the meantime is not properly theirs, but that of the European world and its American colony, each of whose racial stocks has added something to the common fund." ('10, p. 67).

But probably the greatest difference between the American negro and the members of his race in the relatively isolated negro communities elsewhere, will eventually be found in the greater amount of white blood which the American negro will possess. In the course of generations, if the present or a similar rate of white admixture continues, there will be few if any pure negroes remaining in the United States. The whole of our colored population will be mulatto, and as time passes the proportion of white blood will increase. This will be inevitable from the fact that white blood once infused into the negro community will remain there and be continued by intermarriage among the negroes from generation to generation. The white blood in a mulatto does not return to the white race through intermarriage; the white stock will remain pure. It is among the negroes that a mulatto's white inheritance is diffused. Such a continued raising of the amount of white blood in the negroes is of course dependent upon a continuance of some degree of race intermixture; but there is no valid reason for believing that intermixture will wholly cease.

This consideration will in time work a great change in the race problem in America, and it may both simplify and complicate the interracial situation. On the one hand, the negro will have greater ability, and there will be less difference between the races. The standard of colored achievement will be higher. But on the other hand, race friction may be increased. The mulatto is not as tractable or as submissive to white domination as is the pure negro. He thinks and feels more nearly as does the white man. And he cannot be content with the social restrictions that are thrown around him. In our own time these tendencies seem to be already evident. The very considerable progress that the negro has made has been in large measure due to mulattoes. And it is mainly the mulattoes who have so largely done away with that type of negro which was content to regard itself as the natural

dependent of the white. It seems probable, indeed, that the excessive criminal and immoral tendencies sometimes charged to the mulatto may be due, if they exist at all, to the fact of his recognition of his ability and his resentment at the position of inferiority in which he is placed.

The statement is frequently made that mulattoes are of a less hardy physical nature than are pure negroes, and that their death rate is therefore higher. There is no reliable evidence of this. On the contrary, there is a not unfounded opinion that half-breeds from colored Asiastic and white European stock are longer lived than the original races from which they spring.

There is evidence that the colored population as a whole has a considerably higher death rate than the white. In the U. S. Census ('13) are given the death rates for different classes of the population in the area of registration. This area embraces twenty-three states in the North and the West, and certain cities but no states in the South. The death rate for native whites, per 1000, is 15.7; for foreign-born whites it is 18.9; for negroes it is 25.0. In Washington, D. C., the white death rate is 15.5; the colored is 26.6 In Baltimore, the white death rate is 16.2; the colored is 30.9. In New Orleans, the white death rate is 16.6; the colored is 31.2. At all ages the colored death rate is the higher. In the Virginia cities, Alexandria, Danville, Lynchburg, Norfolk, Petersburg, Richmond and Roanoke, the average death rate for both races combined is 20.6. But in these cities there are 3502 deaths of negroes to 3429 deaths of whites, and yet the colored population is only about one-half as numerous as the white. The life insurance companies recognize this greater mortality among the negroes. The ratio of actual to expected deaths among negro men is reported as follows in the Medico-Actuarial Mortality Investigation ('13): Negro ministers, teachers and other professional men, 137 per cent.; all other colored men, 147 per cent. It may be added that the ratio for North American Indians is 124 per cent.

The greater colored mortality is probably due to a number of causes. The fact that the higher class of negro men has a lower death rate would indicate that the insanitary conditions of negro life are a factor. And the nature of the most prevalent diseases among the negroes would also point to this. Tuberculosis, for instance, is the cause of death for 405.3 ne-

groes and 126.2 whites per 100,000 population of each race. As better living conditions are established among our colored population it is reasonable to suppose that their death rate will not be relatively so much greater than that of the whites. But on the other hand, it is also probably true that the natural constitution of the negro is a factor in producing his greater mortality in America.

However this may be, it is a fact that the negroes in this country have increased less rapidly than the whites in recent years in proportion to their numbers, despite the general opinion that they are more prolific in offspring. In the country at large, between 1900 and 1910, the native whites of native parentage increased 20.9 per cent.; the native whites of foreign or mixed percentage increased 20.8 per cent. But the negroes increased only 11.2 per cent., and in the South the percentages of increase for the two races are approximately the same as those for the nation.

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Appendix—The Tests

Mixed Relations Test I.		*Mixed Relations Test II.*	
Eye—see	Ear—	Good—bad	Long—
Monday—Tuesday	April—	Eagle—bird	Shark—
Do—did	See—	Eat—bread	Drink—
Bird—sings	Dog—	Fruit—orange	Vegetable—
Hour—minute	Minute—	Sit—chair	Sleep—
Straw—hat	Leather—	Double—two	Triple—
Cloud—rain	Sun—	England—London	France—
Hammer—tool	Dictionary—	Chew—teeth	Smell—
Uncle—aunt	Brother—	Pen—write	Knife—
Dog—puppy	Cat—	Water—wet	Fire—
Little—less	Much—	He—him	She—
Wash—face	Sweep—	Boat—water	Train—
House—room	Book—	Crawl—snake	Swim—
Sky—blue	Grass—	Horse—colt	Cow—
Swim—water	Fly—	Nose—face	Toe—
Once—one	Twice—	Bad—worse	Good—
Cat—fur	Bird—	Hungry—food	Thirsty—
Pan—tin	Table—	Hat—head	Glove—
Buy—sell	Come—	Ship—captain	Army—
Oyster—shell	Banana—	Man—woman	Boy—

Completion Test

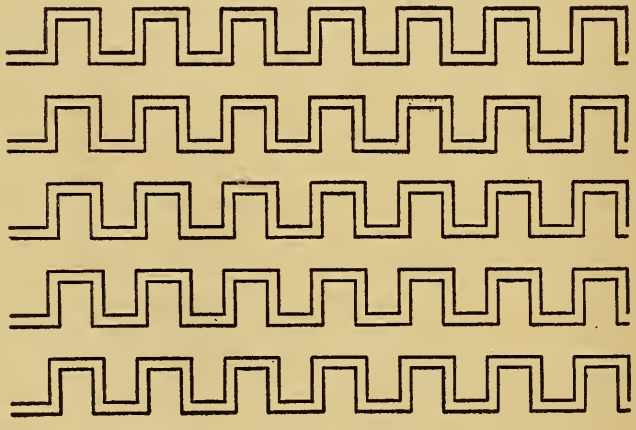
On each line of dots write the word which makes the best meaning.

23. The poor baby ..... as if it were ..... sick.
24. The ..... rises ..... the morning and ..... at night.
25. The child .... river ..... was drowned.

26. Boys who play .... mud get their hands ..... .
27. It is good to hear ..... voice .... friend.
28. The poor little ..... has ..... nothing to ..... ; he is hungry.
29. Boys and ..... soon become ..... and women
30. The boy who ..... hard ..... do well.
31. She ..... if she will.
32. One's ..... do ..... always express his thoughts.
33. Very few people ..... how to spend time and ..... to the best advantage.
34. It is a ..... task to be kind to every beggar .... for money.
35. Brothers and sisters ..... always ..... to help ..... other and should ..... quarrel.
36. Worry ..... never improved a situation but has ..... made conditions ..... .
37. Men ..... usually more ..... to do heavy work ..... women.
38. ..... weather usually ..... a good effect ..... one's spirits.
39. If a person injures one by ....., without having intended any ....., one should .... insulted.
40. A shelter ..... the weather is ..... appreciated on a ..... day.
41. It is very ..... to become ..... acquainted ..... persons who ..... timid.
42. The best advice ..... usually ..... obtained ..... one's parents.

43. A home is ..... merely a place ..... one ..... live comfortably.
44. The sun is so ..... that one can not .... directly ..... causing great discomfort to the eyes.
45. To ..... many things ..... ever finishing any of them ..... a ..... habit.
46. ..... are imes in the ..... of almost ..... of us when we ..... for a long life.
47. Children should ..... that after all nobody is ..... to care much more ..... their success than ..... parents.

Maze Test—(three-fifths original size).



Cancellation Test

OYKFIUDBHTAGDAACDIXAMRPAGQZTAACVAOWLYX
WABBTHJJANEEFAAMEAACBSVSKALLPHANRNPKAZF
YRQAQEAXJUDFOIMWZSAUCGVAOABMAYDYAAZJDAL
JACINEVBGAOFHARPVEJCTQZAPJLEIQWNAHRBUIAS
SNZMWAAAWHACAXHXQAXTDPUTYGSKGRKVLGKIM
FUOFAAKYFGTMBLYZIJAAVAUAACXDTVDACJSIUFMO
TXWAMQEAKHAOPXZWCAIRBRZNSOQAQLMDGUSGB
AKNAAPLPAAAHYOAEKLNVFARJAEHNPWIBAYAQRK
UPDSHAAQGGHTAMZAQGMTPNURQNXIJEOWYCREJD
UOLJCCAKSZAUAFERFAWAFZAWXBAAAVHAMBATAD
KVSTVNAPLILAOXYSJUOVYIVPAAPSDNLKRQAAOJLE
GAAQYEMPAZNTIBXGAIMRUSAWZAZWXAMXBDXAJZ
ECNABAHGDVSVFTCLAYKUKCWAFRWHTQYAFAAAOH

Vita

The author of this monograph was born in Leesburg, Virginia, Nov. 16, 1886. His education was obtained in the public schools of his native town, at the College of William and Mary, the University of Virginia and Columbia University. In 1905 he received the degree of L. I. from William and Mary, and in 1907 the degree of B. A. from the same institution. In 1911 he received the degree of M. A. from Columbia University.