

## SOME OBSERVATIONS ON THE GROWTH OF COLORED BOYS

MELVILLE J. HERSKOVITS

The following data were secured in the course of an investigation into the general problem of Variability under Racial Crossing, and were obtained, together with other numerous measurements not treated here, from the children of Public School 89, Manhattan, New York City.<sup>1</sup> This school is situated in the heart of the Negro district of Harlem, and represents a population which is highly mixed, from a racial point of view. It is exclusively a boys' school in the upper grades, and the group from which it draws its pupils is best described, from an economic standpoint, as near the poverty-line. The significance of this will be discussed later.

The two measurements, the data of which are presented below, are height and weight. All measurements were taken by the writer. Height was measured to the nearest centimeter on a wooden measuring-rod, which had a projecting movable arm, and was obtained with shoes not removed, due to practical necessities. The height of the heel of each boy, however, was taken with the sliding caliper to the nearest millimeter, and, in the course of the investigation fifty-five boys, selected at random, were asked to remove their shoes, when the measurements were recorded first without shoes, and later in the usual way. The average error due to incorrect estimation of the height of the heel is only .4 centimeter, and since all measurements were taken to the nearest centimeter, and all net heights (after deduction for the heel) tabulated the same way it can be seen that this would make little difference in the final result. Weight was taken on an ordinary scale, which was balanced every morning when measuring was commenced to insure accuracy. The weight of the boys was taken without coats, sweaters, or overcoats, but with shoes, and are presented below as recorded.<sup>2</sup> Age

<sup>1</sup>The thanks of the writer are due to Dr. Jacob M. Ross, Principal of Public School 89, and his staff of teachers, for their cordial cooperation and forbearance in this research. Their helpfulness during the taking of these measurements constitute no small element in making these results possible.

<sup>2</sup>Comparability of weight results of different investigators of children is exceedingly difficult, due to the general negligence in the matter of specifying deductions made for clothing, if any. Therefore, the data are here presented without reduction.

was checked with the school record, calculated in years, months, and days, and tabulated to the nearest half-year.

In Table I are presented the number of cases for each age, the mean and standard deviation of the mean, the standard deviation of the array, and the increment for each year over the preceding year for the height of the Colored children measured in the course of this study, and comparative data presented by Boas for 45,151 White children of

TABLE I  
Height of Boys (in centimeter).

Age	M J H 1,006 Colored				F Boas 45,151 White				Greenwood 235 Colored		Hrdlicka 110 Colored	
	N	M	$\sigma$	$\Delta$	N	M	$\sigma$	$\Delta$	N	M	N	M
5												
5½	13	112.3 ±1.1	±3.8	—	1535	105.90	±4.80	—				
6											5	110.1
6½	38	115.7 ±.85	±5.2	3.4	3975	111.58	±4.92	5.68				
7											5	114.7
7½	86	120.9 ±.65	±5.9	5.2	5379	116.83	±5.22	5.25				
8											13	119.6
8½	108	126.7 ±.52	±5.5	5.8	5633	122.04	±5.53	5.21				
9											25	125.1
9½	106	131.1 ±.59	±6.1	4.4	5531	126.91	±5.66	4.87				
10									28	129.5	12	127.1
10½	103	135.7 ±.65	±6.6	4.6	5151	131.78	±5.90	4.87				
11									36	135.3	12	136.0
11½	114	140.5 ±.51	±5.5	4.8	4759	136.20	±6.32	4.42				
12									44	135.4	10	138.1
12½	103	144.3 ±.74	±7.5	3.8	4205	140.74	±6.80	4.54				
13									51	142.3	13	139.2
13½	116	148.9 ±.75	±8.1	4.6	3573	146.00	±7.71	5.26				
14									29	149.4	7	150.5
14½	105	156.3 ±.73	±7.6	7.4	2518	152.39	±8.66	6.39				
15									33	154.9	6	145.5
15½	75	161.8 ±.81	±7.1	5.5	1481	159.72	±8.87	7.33				
16									9	163.6	2	150.0
16½	25	161.8 ±1.74	±8.7	0.0	753	164.90	±7.75	5.18				
17									5	165.1		
17½	12	164.1 ±1.31	±4.6	2.3	429	168.91	±7.23	4.01				
18												
18½	2	162.0	—	—	229	171.07	±6.74	2.16				

Boston, Milwaukee, St. Louis, Worcester, Toronto, and Oakland,<sup>3</sup> by Greenwood for 235 Colored children of St. Louis, and by Hrdlička for 110 Colored Orphanage Children.<sup>4</sup> When we compare the data which have been presented in this investigation with these other data which are available, we find that the children measured in the Harlem district of New York are larger, age for age, not only when compared to the few other Negro children whose measurements have been published, but strikingly larger when compared with the large series of White children published by Boas. All this is of significance in the consideration of possible racial differences as brought out in the table. Comparison with measurements of other Negro children are not satisfactory, since for Hrdlička's and Greenwood's data, the conditions differed and, for Greenwood's series the number of children in the series and their social background remain unknown. However, the figures are here presented in the form in which they were available.\*\* The boys in Boas' compilation, however, afford us an excellent cross-section of the total White population. They represent perhaps the largest series available, and from a point of view of economic background and therefore nourishment, give an important representation of the actual mean height. As has been remarked, the children measured by the writer are near the poverty-line, and it is therefore of undoubted significance that the height, age for age, from the 5th year to the 16th, shows a decided advantage on the part of the Colored boys. Whether this is a function of the racial composition of the group one is not prepared to state, for the group is of great heterogeneity. The 1% of White children in Public School 89 were not measured; it is undoubtedly true, however, that the Colored boys represented in this series are of mixed racial heredity in the main. In the course of the research measurements and genealogies

<sup>3</sup>F. Boas. *The Growth of Toronto Children*. Rep. of Comm. of Education, U. S. Bureau of Education, for 1896-98, xxxiv, p. 1555.

<sup>4</sup>J. H. Greenwood, *Heights and Weights of Children*, Ann. Rep. Public Health Ass'n., vol. xvii (1891) pp. 199-205. Hrdlička, Aleš, *Anthropological Investigations on 1,000 White and Colored Children of both Sexes*, 47th Ann. Rep., N. Y. Juvenile Ass'n., (1899), pp. 1-86. These tables are also reproduced by Bird T. Baldwin in his helpful monograph, *The Physical Growth of Children from Birth to Maturity*, Univ. of Iowa Studies in Child Welfare, vol. i (1920-21) No. i, pp. 261 ff.

\*\*Dr. Hrdlička informs me in a recent letter, that "all measurements of height were made with the children barefooted and in their underclothing, with the Broca 'planche anthropométrique' and according to the standards of the French school. . . ." Since the children the data for whom are given in the present research were measured with shoes and the height of the heel deducted, a slight allowance for error on my part should be made in comparing the two series.

obtained from over 125 adults living in Harlem showed only two persons who claimed to be of pure Negro descent. This heterogeneity of the group might be inferred from the large variability which is present in the Colored boys' series, altho it is also seen in the White series. However, there must be considered against the acceptance of the view that this variability is a result of racial mixture, the shortness of the series here presented, and the tremendous variability which must be present in the social background of these children, and which undoubtedly is intimately connected with the growth of the individual children, as we know from studies on children of other racial groups.<sup>5</sup> Again, the fact that there are many of these Colored boys who were born in the South of the United States, in the British West Indies, or in Panama, may also contribute to this large variability. But it must also be remembered that Boas' series represents all sections of the country, that there must be many children who were not born in the cities where they were measured, and that the Oakland children, who are included in the series, were the largest of any city in the country. This question can only be solved by comparison of data from two groups, each racially and environmentally homogeneous.

The increase in stature from year to year is worthy of notice at this point, when comparison between Boas' series and the present one is made. While there is a shifting from one year to the next in the advantage of increase between the two series, the general trend is very similar, the greatest gain being made by the Colored boys between their 13th and 14th years, by the White between the 14th and 15th. One is somewhat at a loss for a cause to which to ascribe the striking decrease in gain observable in the Colored boys between the 16th and 17th years; the most plausible explanation would probably be that the sample for this year is too small to hold any significance, it numbering only 25 cases.

When we turn to a consideration of the weight of these boys, we are confronted at once with the difficulty, mentioned above, of accounting for the weight of clothing. Many reporters of data do not specify the allowances made, if any, in the compilation of their results, and this makes for added difficulty in making comparisons. Baldwin<sup>6</sup> states that it is his practise to allow 75. kgm. for children under 12 years of

<sup>5</sup>Franz Boas, *The Growth of Children as Influenced by Environmental and Hereditary Conditions, School and Society*, vol. xvii (1923), pp. 305-308. Milo Hellman, *Nutrition, Growth, and Dentition*, Dental Cosmos, January 1923.

<sup>6</sup>Op. cit., p. 27.

age, and 1.1 kgm. for those over, when they have been weighed without shoes, coats, or overcoats. In the instructions for measuring Toronto children, Boas orders weight to be taken in "ordinary indoor costume."<sup>7</sup> Bowditch, who made a study of clothing, allows 8%, but this must account for shoes, coats, and outer clothing.<sup>8</sup> In Table II, no de-

TABLE II  
Weight for Boys (in pounds).

Age	N	M J H 1,000 Colored			N	Boas and Wissl 2,109 White			Greenwood 235 Colored		Hrdlicka 700 Negro & White	
		M	$\sigma$	$\Delta$ (increase)		M	$\sigma$	$\Delta$	N	M	NM	M $\Delta$
5											33.1	—
5½	13	44.2 ±1.1	±4.17	—								
6											39.9	6.8
6½	38	48.0 ±.97	±6.8	5.8	109	45.7	±5.5	—				
7											45.0	5.1
7½	86	51.5 ±.62	±5.6	3.5	202	49.7	±5.9	4.0				
8											47.0	2.0
8½	108	58.5 ±.62	±6.5	7.0	190	54.1	±6.4	4.4				
9											52.9	5.9
9½	106	63.6 ±.76	±7.9	5.1	220	59.4	±7.3	5.3				
10									28	72.7	57.0	4.1
10½	102	69.6 ±1.13	±11.3	6.0	221	65.8	±8.5	6.4				
11									36	78.2	61.7	4.7
11½	113	77.0 ±1.08	±11.5	7.4	210	71.3	±10.3	4.5				
12									44	83.0	70.1	8.4
12½	102	82.0 ±1.43	±14.5	5.0	246	78.4	±12.2	7.1				
13									51	89.0	80.9	10.8
13½	115	93.2 ±1.5	±16.9	11.2	214	86.9	±15.7	8.5				
14									29	93.5	84.0	3.1
14½	104	106.8 ±1.9	±19.6	13.2	203	98.2	±16.5	11.3				
15									33	112.3	85.1	1.1
15½	75	121.1 ±1.8	±16.4	14.7	162	113.8	±20.8	15.6				
16									9	121.1	115.1	30.0
16½	24	116.8 ±2.8	±14.1	4.3	93	122.6	±17.1	8.8				
17									5	130.0	121.9	6.8
17½	12	124.3 ±4.6	±16.1	7.5	39	132.7	±14.9	10.1				
18												
18½	2	106.0	—	—								

<sup>7</sup>Growth of Toronto Children, loc. cit., p. 1542.

<sup>8</sup>Henry I. Bowditch, The Growth of Children. 8th Ann. Rep., Massachusetts State Board of Health (1877), pp. 305-307.

duction has been allowed for clothing, as it was not possible to gather sufficient sets for purposes of weighing. Public School 89 has baths, but only children from the 4th, 5th, and 6th grades use them, and this would not give a sufficient age-range. The clothing (not counting inner coats) of four 10-year boys have an average weight of 3.68 pounds, of 2 11-year boys 4.06, and of three 12-year boys 4.04, but this is not enough to be of any use. However, this series is probably best comparable with Boas' and Wissler's Worcester series<sup>9</sup> where weight was taken with indoor clothing, but without shoes. No comparison will be attempted with Greenwood's or Hrdlička's series of Colored children, as, similarly to the case with height, the details of technique of measurement differed.<sup>10</sup>

In comparison with the White boys of Worcester, we see that the Colored boys maintain the greater weight that might be expected from the greater height they show. The correspondence is very close, even to the fact that they drop behind the White boys during their 16th year. Again, this may be accounted for by the fact that it is at this point that the colored series drops off in number, and that a greater amount of cases might materially alter the result. However, it is not at all safe to make this assumption, and conclusions as to this point must be held in abeyance pending further investigation. It would not be unexpected, however, for White boys to make a gain at about this point, to compensate for their earlier lagging. One comparison with Hrdlička's mixed series will be permitted: it will be noticed that the present group far outweigh, year for year, the Orphanage boys, of whom we are told the Colored number are "slightly smaller" in weight. The discrepancy is so great that even a difference of clothing would not account for the difference. This is what would be expected, if the research by Boas on Jewish children, already cited, may be taken as a criterion. In the gain from one year to the next, the same cyclical aspect is presented by this series as by the one from Worcester, altho the Colored boys lead the others by a year. The noticeable loss in the 16th year is paralleled by a lack of gain in the White series, and similar recovery is made in the 17th year by both groups. In both these ages the greatness of the discrepancy in the Colored series may be attributed safely, perhaps, to the smallness of the numbers. The variability of the Colored series, tho here more regular than was the case with height, again fluctuates when compared

<sup>9</sup>Franz Boas and Clark Wissler, *Statistics of Growth*, U. S. Bureau of Education, Report of the Commissioner for 1904, Chap. ii, pp. 25-102. The Table is given on p. 26.

<sup>10</sup>See footnote 4, p. 441.

with the Worcester White boys. The fact that the variability is larger here as in the case of height, in the earlier ages, would lead to the further assumption that the greater variability in the earlier years may also be partially accounted for by the fact of earlier development, since the racial composition would be expected to be as diverse in the older as in the younger groups.

Baldwin, in his monograph on the growth of children, has calculated<sup>11</sup> the coefficients of variability for the Iowa children he measured for height and weight. A comparison of the coefficients for the various ages of the respective series will be of interest. Baldwin's data were gathered from a group of 120 children, from 7 to 17 years of age, comprising both

TABLE III

Coefficients of Variability for Iowa White Boys and New York City Colored Boys.

Age	Height		Weight	
	N. Y. Colored	Iowa White	N. Y. Colored	Iowa White
6½	4.5		14.1	
7		5.923		17.529
7½	4.8		10.8	
8		4.922		13.776
8½	4.3		11.4	
9		5.669		15.642
9½	4.6		12.4	
10		5.388		15.719
10½	4.8		16.2	
11		5.242		16.247
11½	3.8		14.9	
12		4.929		16.051
12½	5.2		17.6	
13		5.166		16.479
13½	5.4		18.1	
14		5.796		17.752
14½	4.8		18.3	
15		5.273		15.844
15½	4.3		12.5	
16		4.408		12.918
16½	5.3		12.07	
17		3.933		11.500
17½	2.8		13.7	

sexes, from whom six to ten annual measurements were taken. It is not stated what percentage of the group were boys, so the number of measured boys on which the table is based cannot be calculated, but the use of the coefficients of variability makes direct comparison possible. Here, again, one does not find results which would show any great significance as far as the variability of these two traits is concerned. Allowing for the difference in age at which the midpoints of the intervals

<sup>11</sup>Loc. cit., p. 144.

is taken in the two cases, there is seen to result, for both weight and height, a fluctuation in variability which is not to be explained by a racial hypothesis. The coefficients of variability of weight, however, are smaller for the New York Colored series in the earlier years, and larger after the 14th, while no such regularity is observable for those of height.

Thus, we may conclude from the preceding study,

1. That Colored boys grow faster in height and weight to the 16th year than White boys;
2. That the differences in variability between children of these two races, whether expressed in terms of standard deviation or the coefficient of variability, are not sufficient on the strength of these admittedly limited data, at least, to allow of explanation on other grounds than differences in economic background, place of birth, and different social conditions;
3. That Colored boys show the same acceleration in growth characteristic of White boys during adolescence, which, however, occurs approximately one year earlier, even tho the Colored boys come from a poorer economic level than the White boys to whom they are compared;
4. That the data gathered are not sufficient to show conclusively the decrease in yearly gain after the 16th year.