

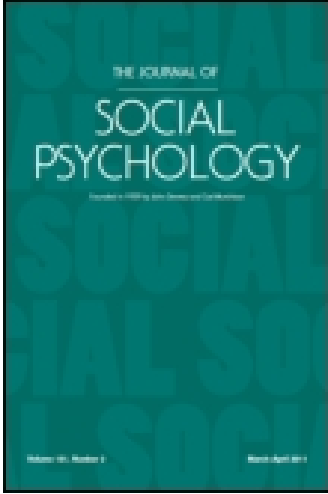
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INTELLIGENCE AND NATIONALITY OF WISCONSIN SCHOOL CHILDREN*

From the Psychology Laboratory of The University of Wisconsin

RUTH BYRNS

To determine whether significant differences in mental capacity exist between racial and nationality groups is difficult because of certain disturbing factors which are difficult to control, to isolate, or to measure. Chief among these factors are differences in selection, in social and economic status, in educational and cultural experience, and in facility with the language of a test, where a verbal test is employed. It is because of these disturbing factors that studies of the differences in intelligence between ethnic groups show inconclusive and unsatisfactory results. An example of this is found in the inferences drawn from the wide differences between nationality groups shown by the intelligence tests used in the United States Army during the World War and the contradictory conclusions drawn from subsequent research. The material presented here is a study of natio-racial differences in mental ability with two of the disturbing factors—variation in education and in the ability to use language—definitely minimized. With these two factors practically eliminated it is significant to note that there is a considerable shift from the rankings of the nationalities determined by the psychological examinations in the United States Army.

The nationality of each of 133,289 pupils in Wisconsin high schools and the percentile ratings of these pupils on standardized intelligence tests are the data on which this study is based. The fact that all of these pupils have tenth- and twelfth-grade standing, and have completed approximately ten to twelve years of schooling, minimized the influence of educational differences and tends to eliminate the differences due to language difficulty. It is recognized that neither of these two factors is completely eliminated, however. Social and economic differences contribute as well as schooling to educational

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and cultural experiences. A number of the children undoubtedly were handicapped in their use of English because they came from homes where a foreign language was spoken.

The data are a part of information collected by the Wisconsin Cooperative Testing Committee under the general direction of V. A. C. Henmon. The entire group of 133,289 is composed of 23,165 high school seniors who were given the American Council Psychological Examination in December, 1931, 25,839 seniors and 25,812 sophomores who were given Form *A* of the Henmon-Nelson Test of Mental Ability in December, 1932, and 26,403 seniors and 32,070 sophomores who were given Form *B* of the Henmon-Nelson test in December, 1933. The nationality of each of these pupils was found by including this question on the information blank:

Countries of ancestry i.e., foreign extraction	}	Father	Mother
		e.g., English, German, Italian, Jewish, Swedish Negro, etc.	

The psychological test scores were tabulated according to the natio-racial groups and the median and quartile points were found for each group. The groups were then arranged in order according to the size of the median. Thirty different nationalities were reported with frequency. Indians, Mexicans, Japanese, and Chinese were found so infrequently that they were classed in the miscellaneous group which also includes Turks, Armenians, Spanish, Portuguese, and a large number of racial mixtures which were reported so infrequently as not to justify a separate heading.

Of the 133,289 pupils, 78,560 reported both parents of the same nationality and 49,145 reported that the two parents were not of the same nationality. Of this latter group 5516 reported three or more nationality strains. The number of students who did not report nationality was 5584. Excluding those tabulated under miscellaneous, 83 classifications were found fifty or more times.

The psychological test ratings of the 78,560 boys and girls of single natio-racial strains are listed in Table 1. The thirty groups are arranged according to the size of the medians and with the data grouped in decile divisions.

The wide range in the average mental ability of the different natio-racial groups is shown by the 30-point range in the medians given in Table 1. The high median of 60.40 for the large group of Jewish pupils and the low median of 30.36 for the large number

TABLE 1
NATIONALITY AND MENTAL ABILITY OF 78,560 WISCONSIN HIGH SCHOOL STUDENTS

Psychological percentiles	Jewish	Irish	Danish	Hun-garian	Dutch	Scotch	Ameri-can
90-100	248	396	116	44	92	35	1826
80-89	166	351	111	38	100	30	1804
70-79	137	298	92	36	90	30	1558
60-69	136	243	104	37	78	16	1813
50-59	161	318	124	36	99	28	1705
40-49	111	258	113	42	96	26	1892
30-39	112	227	99	26	78	37	1677
20-29	102	276	81	24	74	24	1539
10-19	96	256	89	40	83	25	1813
0-9	94	239	53	31	65	18	1648
Total	1363	2862	982	354	855	269	17,275
Q^a	84.4	80.9	77.9	78.1	77.5	79.2	75.5
Median	60.4	55.5	54.5	53.8	53.1	51.6	50.4
Q^b	34.3	27.9	32.2	27.2	28.8	30.	25.5
Q	25.	26.4	22.8	25.4	24.3	24.5	25.

TABLE 1 (continued)

Psychological percentiles	Welsh	German	Czeck	Aus-trian	Jugo-slav	Finnish	Swed-ish
90-100	22	2716	35	61	21	36	178
80-89	29	2911	23	59	31	49	189
70-79	13	2737	28	56	30	49	164
60-69	23	2768	40	64	31	37	170
50-59	18	3213	52	59	30	46	178
40-49	29	3101	32	73	38	50	190
30-39	29	3055	42	70	33	41	160
20-29	13	2770	38	57	21	46	207
10-19	17	2972	40	65	36	52	183
0-9	18	2763	35	55	27	44	204
Total	211	29,006	365	619	298	450	1823
Q^a	78.6	74.	68.6	73.7	72.5	74.3	74.5
Median	49.8	49.4	48.5	48.5	48.4	48.4	48.2
Q^b	31.6	25.4	24.2	26.1	25.4	23.5	23.3
Q	23.5	24.3	22.2	23.8	23.5	25.4	25.6

TABLE 1 (continued)

Psychological percentiles	Lithuanian	Russian	Norwegian	Canadian	Croatian	English	Bosnian	Greek
90-100	30	67	459	18	12	537	74	14
80-89	29	70	546	15	13	480	84	22
70-79	46	55	533	12	5	514	105	19
60-69	47	78	542	10	9	471	98	11
50-59	52	63	604	16	6	523	107	19
40-49	64	72	608	10	14	522	107	28
30-39	45	77	613	22	9	563	107	27
20-29	36	61	544	12	9	557	112	20
10-19	46	80	664	15	12	645	120	20
0-9	41	85	630	19	13	696	118	22
Total	436	708	5743	149	102	5508	1032	202
Q³	69.1	72.7	71.9	76.4	79.	73.	70.4	72.3
Median	47.8	47.	46.9	46.5	45.7	45.6	45.5	44.2
Q¹	26.1	21.9	22.6	22.7	20.5	20.6	21.7	24.2
Q	21.5	25.3	24.6	26.8	29.2	26.1	24.3	24.

TABLE 1 (continued)

Psychological percentiles	Swiss	Slavic	Belgian	Polish	French	Negro	Syrian	Italian	Total
90-100	35	12	14	262	59	3	4	46	7472
80-89	56	14	32	307	56	5	6	70	7696
70-79	49	29	30	334	65	15	6	82	7217
60-69	43	26	33	354	61	9	7	97	7456
50-59	39	25	29	436	65	12	10	133	8206
40-49	58	35	39	568	95	12	8	128	8419
30-39	60	20	36	471	93	17	10	154	8010
20-29	61	35	34	509	89	10	9	162	7532
10-19	62	31	43	536	104	18	16	225	8404
0-9	52	29	48	613	139	23	14	312	8148
Total	515	256	338	4390	826	124	90	1409	78,560
Q³	72.3	66.5	67.4	64.5	65.6	61.1	60.7	55.7	73.8
Median	43.8	43.7	42.	41.1	38.7	36.4	36.	30.3	48.5
Q¹	22.4	21.1	18.4	19.	16.4	14.4	15.3	11.7	24.1
Q	24.9	22.7	24.4	22.7	24.5	23.3	22.7	21.9	24.8

of Italian pupils presents this range of average ability in a striking manner. The 17,275 pupils who named their nationality simply as American may be regarded more or less as a control group. It would seem that this American group would represent a cross section of all abilities and all nationalities. Table 1 shows that this is the case and that the "American" pupils contain the full range of mental ability with the median and quartile points practically identical with the median and quartile points of the whole distribution of cases.

This table also shows that each nationality group, regardless of its position in the scale, has a considerable proportion of cases in each decile in the mental ability distribution. In other words, the full range of ability is found within every natio-racial group and the ability differences within each group are much greater than the differences between the average ability of the groups. Among the pupils in Wisconsin high schools different nationalities have contributed different proportions of pupils of superior, average, and low ability but every nationality has contributed some students of all ability levels.

To compare the mental ability ratings of the various nationalities found in this study with the ratings made in connection with psychological testing in the United States Army, the fifteen nationalities which appeared in both studies are listed in Table 2 in rank order according to the results found in each study. One of the most significant differences shown in this table is the drop of English and Canadian from first and fourth places in the Army study to eleventh and tenth places in the Wisconsin study. Superior ability in the use of the English language no doubt gave these two nationalities an advantage among the adult soldiers which did not operate among the high school pupils. The shift upward in the Wisconsin study of the Russians and Austrians may also be partly explained by the language factor. Seven of the fifteen nationalities had the same rank in both studies or shifted only one place up or down.

It will be noted that among the fifteen nationalities the same four—Greeks, Belgians, Polish, and Italians—fell into the lowest places in both studies. In all four of these nationalities the extensive use of a foreign language outside of school may be a factor contributing to the low rank in the psychological tests. The high rank of the Irish and Danes in the Wisconsin study may be due to a selective

TABLE 2

Average scores on the combined scale for the Army results as given by Brigham (2)			Median psychological test percentile scores in the Wisconsin study		
Country	Average Score	Number	Country	Median percentile	Number
England	14.87	411	Ireland	55.5	2862
Scotland	14.34	146	Denmark	54.52	982
Holland	14.32	140	Holland	53.18	855
Germany	13.88	308	Scotland	51.61	269
Native-born					
White	13.77	81465	America	50.4	17275
Denmark	13.69	325	Germany	49.49	29006
Canada	13.66	972	Austria	48.56	619
Sweden	13.30	691	Sweden	48.29	1823
Norway	12.98	611	Russia	47.08	708
Belgium	12.79	129	Norway	46.92	5743
Ireland	12.32	658	Canada	46.50	149
Austria	12.27	301	England	45.61	5508
Greece	12.02	423	Greece	44.29	202
Russia	11.34	2340	Belgium	42.05	338
Italy	11.01	4009	Poland	41.16	4390
Poland	10.74	382	Italy	30.36	1409

TABLE 3

<i>Army Test (1)</i>		<i>Wisconsin Test</i>	
Percentage who reached or exceeded the average of native-born American		Percentage who reached or exceeded the median percentile	
Country	Percentage	Country	Percentage
England	67.3	Ireland	56.1
Scotland	58.8	Denmark	55.7
Holland	58.1	Holland	53.6
Germany	48.7	Scotland	51.6
Denmark	47.8	Germany	49.4
Canada	47.3	Austria	48.3
Sweden	41.7	Sweden	48.2
Norway	37.3	Canada	47.6
Belgium	35.3	Russia	47.
Austria	28.2	Norway	46.7
Ireland	26.2	England	45.8
Turkey	25.3	Greece	42.
Greece	21.3	Belgium	40.8
Russia	18.9	Poland	38.5
Italy	14.4	Italy	30.3

factor. At the time of the heaviest migration from Ireland and Denmark the hard frontier life of Wisconsin probably tended to select the most able among the immigrants.

The natio-racial differences as found in the two studies are shown in Table 3 by the percentage from each nationality group who reached or exceeded the average of the native-born whites on the Army tests and the percentage from each group who reached or exceeded the median in the Wisconsin study. This table shows that the differences are much smaller between the natio-racial groups in the Wisconsin study than in the Army test results as far as the relative number of those above the average is concerned. The range of the percentages in the Wisconsin study is only 25.8 as compared with 55.1 in the Army results. From this it might be inferred that differences between natio-racial groups tend to shrink when the factors of variation in education and in the ability to use the language are minimized.

The question that arises from an inspection of the data is whether or not the differences between the various groups are reliable differences. The reliability of a measure of central tendency—the median in this case—is dependent upon both the size of the sample and the variability of the separate measures within the sample. The following formula was used to test the reliability of the differences between the medians:

$$P E_{\text{difference}} = \sqrt{P E_{\text{median}}^2 - P E_{\text{median}}^2}$$

Table 4 presents $\frac{D}{P E_{\text{diff.}}}$ between the medians of all the natio-racial groups. Where $\frac{D}{P E_{\text{diff.}}}$ is equal to 4 or higher it may be interpreted to mean that the obtained difference between the medians is completely reliable and a true difference greater than zero between the samples is insured. Where $\frac{D}{P E_{\text{diff.}}}$ is equal to 1.9 the chances are 90 in 100 that there is a difference greater than zero between the true median scores of the nationalities; where the figure is 3.00 the chances are 98 in 100 that a true difference greater than zero exists.

From Table 4 it may be seen that many of the differences in the medians are significant and true differences. Between the Jews and

all other nationalities the differences in medians are sufficiently high to be taken as completely reliable. Between the Polish, the French, and the Italians and all the other nationalities the differences in medians are nearly all sufficiently high to be considered reliable. Between the Croats and no other nationality is the difference between medians high enough to be taken as reliable. Likewise, the table shows that many of the other differences which appear to be large between medians are not high enough to be regarded as completely reliable.

In viewing this table it must be remembered that the reliability formula measures only the effects of errors due to sampling. Any errors which may result from the failure to get a random sample of the population are not detected by the formula used, and consequently, although the differences in this study between natio-racial groups may be considered completely reliable, it does not allow that differences exist between the nationalities if the entire population were considered. It is extremely unlikely that the sample considered here—tenth- and twelfth-grade pupils—is perfectly representative for any racio-nationality group. In other words, any degree of reliability between the medians refers only to the sample considered—Wisconsin high school pupils—and not to the entire, unselected population.

The psychological test ratings of the entire group of 133,289 seniors and sophomores according to all of the nationality groups are listed in Table 5. The groups are arranged according to the size of the medians.

Perhaps the most striking result of this tabulation is the great range in the medians which means, quite obviously, a tremendous variation between the racio-nationality groups as far as a measure of central tendency in mental ability is concerned. The range in the medians of the nationality groups, from 28.33 to 63.72 for seniors and from 28.82 to 67.50 for sophomores and from 30.3 to 64.06 for the whole group, is in all instances about one-third of the whole percentile range. In most cases, except in some groups where the sample is small, the quartile deviation is rather close to 25 which means that mental ability within the groups tends toward a normal distribution around the median.

Although the psychological test scores of the sophomores and the seniors were tabulated separately as a matter of convenience, this

TABLE 5

Nationality	No.	Med.	Percentage above median		Seniors		Sophomores	
			No.	Med.	No.	Med.	No.	Med.
Miscellaneous:								
three strains	5516	64.06	64.3	3006	63.72	2510	65.38	
Scotch and English	770	62.77	63.5	432	60.42	338	67.5	
American and Russian	61	62.14	62.3	36	60.	25	63.75	
Norwegian and Dutch	99	61.5	56.5	41	55.	58	63.75	
English and Swiss	95	61.5	63.1	45	58.33	50	66.67	
Welsh and English	252	60.8	65.07	153	60.38	99	61.25	
Jewish	1363	60.4	62.2	828	57.68	535	65.5	
Irish and Scotch	633	60.29	59.8	328	60.71	305	59.84	
Dutch and English	374	60.24	58.	189	60.65	185	59.67	
German and Austrian	309	59.98	57.6	196	60.	113	59.55	
American and Dutch	122	59.05	65.5	68	62.67	54	56.	
American and Danish	247	59.04	59.5	157	57.	90	63.33	
American and Scotch	100	59.	59.	61	57.86	39	61.25	
Irish and English	1929	58.15	57.7	1043	60.75	886	55.52	
English and Danish	284	58.	61.2	137	60.83	147	55.75	
German and Welsh	264	56.93	56.06	149	54.06	115	58.64	
American and Irish	241	56.61	58.5	154	54.71	87	58.93	
German and Swiss	708	56.	57.2	415	53.1	293	60.24	
German and Dutch	358	55.91	56.41	441	54.71	417	57.44	
English and Swedish	411	55.5	55.4	224	61.82	187	51.46	
Irish	2862	55.5	56.1	1593	56.68	1269	54.1	
American and Canadian	220	55.24	55.	173	56.64	47	53.13	
American and French	92	55.	57.6	43	55.	49	55.	
English and Norwegian	1033	54.85	56.24	538	54.5	495	55.14	
Bohemian and Irish	124	54.71	56.4	58	45.	66	59.09	
Danish	982	54.5	55.7	514	54.5	468	54.5	
Irish and German	4364	54.47	55.06	2254	54.24	2110	54.67	
Irish and Danish	171	54.33	53.8	94	57.5	77	50.71	

TABLE 5 (continued)

Nationality	No.	Percentage above median		Seniors		Sophomores	
		Med.	Med.	No.	Med.	No.	Med.
German and Danish	816	53.91	54.4	438	52.56	378	54.91
Hungarian	354	53.8	53.9	220	60.	134	49.23
German and Scotch	681	53.77	54.03	378	53.93	303	53.67
American and Bohemian	74	53.75	54.05	34	53.33	40	54.
Irish and Polish	115	53.67	54.78	44	53.33	71	53.89
Norwegian and Danish	364	53.66	54.12	206	55.29	158	52.5
Dutch	855	53.1	53.6	425	54.17	430	52.46
Total: two strains	43629	52.59	53.10	23855	52.09	19774	53.59
German and Bohemian	931	52.62	52.96	498	51.89	433	53.37
Norwegian and Scotch	168	52.5	52.3	88	45.83	80	56.92
Miscellaneous:							
two strains	3916	52.25	52.	2408	49.72	1508	54.58
English and French	1048	52.2	52.57	539	48.68	509	55.
American and English	419	52.16	52.26	240	51.05	179	53.
Norwegian and Swedish	823	51.95	52.36	446	50.57	377	53.51
German and Norwegian	2225	51.82	52.13	1158	49.69	1067	53.41
Scotch	269	51.6	51.6	170	46.88	99	57.92
Irish and French	915	51.3	51.4	461	52.55	454	50.18
French and Scotch	62	51.25	51.61	38	53.33	50.	50.
Irish and Dutch	292	51.07	51.02	156	49.29	136	52.63
German and English	6388	50.60	50.62	3300	49.21	3088	52.09
American	17275	50.4	50.39	12062	49.22	5213	52.62
German and French	2693	50.32	50.38	1412	49.68	1281	50.83
American and German	2820	49.83	50.17	1860	48.07	960	53.81
Norwegian and French	263	49.82	49.8	112	46.43	151	52.81
Welsh	211	49.8	49.7	134	49.44	77	50.71
American and Swiss	77	49.44	49.3	49	53.	28	40.
German	29006	49.4	49.4	15499	48.26	13507	50.94
German and Swedish	914	49.26	49.23	426	50.	488	48.41
Irish and Norwegian	487	48.92	48.66	260	49.7	227	47.96
Irish and Swedish	198	48.89	53.	95	50.31	103	45.67

TABLE 5 (continued)

Nationality	No.	Med.	Percentage above median		No.	Med.	No.	Med.	No.	Med.
			48.75	49.4						
French and Dutch	99		48.75	49.4	30		53.33	69		45.
Czech	365		48.5	48.7	214		52.5	151		39.32
Total: single strains	78560		48.5	48.4	44933		47.9	33627		49.31
Austrian	619		48.5	48.3	370		47.4	249		50.86
Jugoslav	298		48.4	47.9	150		49.13	148		47.33
Finnish	450		48.4	48.2	281		49.05	169		46.54
Swedish	1823		48.2	48.2	1054		47.86	769		48.97
Lithuanian	436		47.8	46.7	242		46.76	194		49.26
American and Norwegian	781		47.78	47.5	524		48.17	257		46.18
German and Belgian	252		47.42	46.4	149		48.91	103		44.78
Russian	708		47.	47.	513		48.67	195		43.7
Norwegian	5743		46.9	46.7	3155		45.47	2588		49.46
Canadian	149		46.5	47.65	119		48.5	30		30.
American and Swedish	296		46.	47.29	208		45.79	88		46.67
Croatian	102		45.7	44.1	47		51.67	55		40.71
English	5508		45.6	45.8	2714		45.78	2794		45.4
Bohemian	1032		45.5	45.3	541		45.07	491		46.35
German and Polish	1277		45.08	45.02	656		43.08	621		48.14
Not Indicated	5584		44.34	44.39	3555		45.19	2029		42.13
Greek	202		44.2	42.07	102		48.18	100		41.76
Swiss	515		43.8	43.1	276		44.	239		43.7
Slavic	256		43.7	41.4	129		43.41	127		44.23
French and Swedish	128		43.33	43.7	52		37.14	76		48.57
Belgian	338		42.	40.8	174		43.08	164		40.
American and Polish	4390		41.63	39.59	175		42.62	171		40.68
Polish	4390		41.1	38.5	2242		43.89	2148		37.21
French	826		38.7	37.	406		41.79	420		35.42
Negro	124		36.4	35.4	57		34.64	67		43.14
Syrian	90		36.	36.6	41		28.33	49		41.
Italian	1409		30.3	30.3	661		32.58	748		28.82

presentation does offer a certain measure of the reliability of the data. Consistency of rank for the different racio-nationality groups in both senior and sophomore listings would indicate a degree of reliability of the rankings. To find whether the rankings were consistent the following divisions were made.

Group I	Median above 65	Very High
Group II	Median from 55 through 64.9	High
Group III	Median from 45 through 54.9	Average
Group IV	Median from 35 through 44.9	Low
Group V	Median below 35	Very Low

Only 23 of the classifications shifted from one group to another and had a difference of five points or more in the medians. Of this number, 13 were groups with less than 100 cases and very likely did not represent adequate samples. Of the ten larger classifications which shifted to a considerable degree, explanation can be offered only in the case of the Jews. It will be noted that the median for the 828 senior Jews is 57.68 while for the 535 sophomore Jews it is 65.50. This may be explained by the fact that in 1931, when the data were first being collected, the question asked the high school seniors concerning nationality of father or mother did not include the suggestion "Jewish" among the several listed. In the information from that year it was found that less than 20 students listed Jewish as their nationality. In 1932 and 1933 the suggestion "Jewish" was listed in the nationalities named in the questionnaire and a much larger proportion of students listed this nationality. It seems likely, therefore, that, because many Jews were not correctly listed among the seniors in 1931, the sophomore group represents a more complete sample than the senior group.

It is interesting to note that the students who listed three or more nationality strains had the highest median among the seniors and one of the highest among the sophomores. The significance of this is doubtful, however, as it may mean that a combination of several nationality strains tends to produce superior mental ability or it may simply mean that the students of higher mental ability tended to know and report more complete information concerning their nationalities. It is likewise interesting to note that the group of students who did not indicate their nationality fell well below the median among both seniors and sophomores.

The 43,629 children who listed two natio-racial strains had a

median of 52.59 while those of a single strain had a median of 48.5. Above the median mental ability we find 64.3 per cent of the children who listed three or more natio-racial strains, 53.1 per cent of those who reported two natio-racial strains, and only 48.4 per cent of the children who reported that both their parents were of the same nationality. This indicates that for the cases considered here children of "mixed" natio-racial groups surpassed in mental ability the children of "single" strains.

CONCLUSIONS

It is impossible to judge whether the results presented here have general significance or whether they hold only for that portion of the population which survives ten to twelve years in Wisconsin schools. Although the factors of language handicap and differences in education are minimized, they are not eliminated, and the factors of selection and differences in social and economic status are in no way eliminated. The factor of selection in this study is a peculiar one and includes the selective influence that enters into the migration of peoples as well as the selective influences that the schools play in different nationalities. In other words, high school pupils do not necessarily represent the same sort of sample for all the natio-racial groups.

With all the limitations taken into consideration there are, nevertheless, certain significant conclusions which may be drawn from these data. The rank of the Jewish children with a median higher than that in any other "single-strain" group (see Table 1) supports the general conclusion of previous studies that the Jews in this country surpass the average mental ability in America. Likewise, the low rank of the Greeks, Belgians, Polish, and Italians supports the general conclusions of other studies that these natio-racial groups as found in America tend to test low in mental ability. The Russians, Hungarians, Danish, Irish, and Austrian groups in this study rank higher than these groups are generally reported to rank, and the English and Canadians ranked lower than in other published studies. The children who reported three nationality strains ranked highest of all, and those who listed two strains were considerably above those of a single strain.

Perhaps the most revealing conclusion that may be drawn appears

when a comparison is made between the percentage in the natio-racial groups who reached or exceeded the average in the Army test and in the Wisconsin study. The differences are conspicuously smaller in the Wisconsin study. This points to the conclusion that, when language handicap and variation in education are eliminated, the differences in intelligence between natio-racial groups decrease. The fact remains, however, that, even though the differences have decreased, a wide range of statistically reliable differences were found to exist between the average mental ability in the natio-racial groups.

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