

## Genetic Determinism

In Handout I, I quote four of the five most frequently cited opponents of the fact that genetically determined differences in intelligence between races have been decisively proved saying that the only irrefutable and unequivocal proof would be a study of interracial adoption.

Such a study now exists. It is the Minnesota Transracial Adoption Study, in which Sandra Scarr and Richard Weinberg studied black and mixed-race children who were raised from infancy by white parents. Their purpose was to show that social environment affects intelligence. In the introduction to their first report of their study, in 1976,<sup>1</sup> they stated, “The high IQ scores of the ... black adoptees indicate malleability for IQ”. From then on, they succeeded in providing the media with the most frequently cited evidence for the environmentalist position.

James Flynn entitled Appendix B (pp. 262-70) of his book *Race, IQ and Jensen*, from which I quote in Handout I, “Jensen versus Sandra Scarr”, where he opposed to each other Arthur Jensen, the leading proponent of genetically determined racial differences in intelligence, and Sandra Scarr, the leading proponent of the importance of social environment in causing racial differences in intelligence.

In 1981, Scarr edited a book entitled *Race, Social Class, and Individual Differences in I.Q.* On pages 109-135 she reprinted her and Weinberg’s 1976 article as the strongest proof that racial differences in IQ are environmentally caused.

In their report on their study in 1992<sup>2</sup> Scarr and Weinberg still claimed (p. 133), “The results ... continue to support the view that the social environment maintains a dominant role in determining the average IQ level of black and interracial children”.

After the publication of *The Bell Curve*, their study was the most used refutation of it, by newsmagazines, popular scientific journals and sociological and political-science journals.<sup>3</sup>

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<sup>1</sup> “IQ Test Performance of Black Children Adopted by White Families”, *American Psychologist*, pp. 726-39

<sup>2</sup> “The Minnesota Transracial Adoption Study: A Follow-Up of IQ Performance at Adolescence”, *Intelligence*, pp. 117-35

<sup>3</sup> E.g. *Newsweek*, 24 October 1994, p. 38; *Scientific American*, January 1995, p. 9; *Journal of Political Economy*, 1995, p. 1109

However, when the media reported the results of Scarr and Weinberg's study, they reported that the black adoptees, who had been raised by upper-middle and upper-class white parents, had the same IQ as upper-middle and upper-class white children. Incidentally, among the newspapers that reported that, and did so often, was the Johannesburg *Star*. But Scarr and Weinberg never claimed that. They always pointed out that even when the adopted children were little, their IQs were closer to the IQs of their biological parents, whom they never met, than to their adopting parents, who raised them from infancy; and their IQs got closer and closer to the IQs of their biological parents as they aged. All Scarr and Weinberg claimed was that in their study, adoption had a significant influence on the IQ and academic performance of the adopted children, even when they were adolescents, which made it different from all other adoption studies, in which no influence was found.<sup>4</sup>

This is a fascinating and important finding of all adoption studies. At all ages the IQs of adopted children are closer to the IQs of their biological parents, whom they never knew, than to the IQs of their adoptive parents, who raised them from infancy; but the correlation between the IQs of adopted children and their adoptive parents invariably declines to non-existence by early adulthood.<sup>5</sup>

This chronological effect operates at all ages. Traits become progressively more genetically controlled from birth through age four, as well as later.<sup>6</sup> For instance, identical twins come from the same fertilized egg. At birth identical twins correlate with each other in height and weight by only .62 and .63. But when they are eight years, most identical twins correlate .99. (A correlation of 1.00 means that two entities are identical.) Similarly, when mental ability of infants is measured by the Bayley Scale of Infant Development, at

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<sup>4</sup> page p. 547 and *passim* of "IQ Correlations in Transracial Adoptive Families", *Intelligence* 17, 1993, pp. 541-55

<sup>5</sup> T. J. Bouchard Jr., D. Lykken, M. McGue, N. Segal, A. Tellegen, "Sources of Human Psychological Differences: The Minnesota Twin Study of Twins Raised Apart", *Science* 250, October 12 1990, pp.223-8; N. Pedersen, R. Plomin, J. Nesselrode, G. McClean, "A Quantitative Genetic Analysis of Cognitive Abilities During the Second Half of the Life Span", *Psychological Science* 3, 1992, p. 346; J. Loehlin, J. Horn and L. Willerman, "Differential Inheritance of Mental Abilities in the Texas Adoption Project", *Intelligence* 19, 1994, p. 327; R. Plomin, D. Fulker, R. Corley and J. DeFries, "Nature, Nurture and Cognitive Development from 1 to 16 Years", *Psychological Science*, November 8, 1997, pp. 442-7; Alacrón *et al.* 1998

<sup>6</sup> P. Vernon (editor), *Biological Approaches to the Study of Human Intelligence*, 1993, pp. 123-6

three months the correlation between identical twins is .66, at six months the correlation is .75, at eighteen months .82.<sup>7</sup>

With these facts in mind a common misconception can now be corrected. The genetic component of intelligence is usually said to be between 40% and 80%; and sometimes, that is averaged out to 60%. That is extremely misleading. The 40% is from studies of small children, 80% from studies of adults. In 1998, the American Psychological Association published a book called *The Rising Curve*, edited by Ulric Neisser. On pages 16-17, Neisser observed,

It is now widely agreed that  $h^2$  [heritability] for IQ lies between .4 [for small children] and .8 [for adults] in the U.S. White population. ... When biologically unrelated children are raised in the same home (as in many cases of adoption), the correlation between their IQ scores is unimpressive in childhood and near zero as they grow up!<sup>8</sup>

Even the 80% figure is misleading, since the remaining 20% is not influenced by family, school, culture or other aspects of social environment. The 20% that is not genetic is determined prenatally, by the intrinsic variability in developmental processes, especially in the formation of the nervous system in the early stages of its development in the mother's uterus.<sup>9</sup> No one has ever found any influence for family, school, culture or other aspects of social environment; and the only serious students who claimed to find such an influence were Scarr and Weinberg.

I will now return to their study, and add another fact about it. The parents who adopted these black children had an average IQ of 115 (in the upper 15% of the general

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<sup>7</sup> Pages pp. 215-16 of R. S. Wilson, "Twin Growth: Initial Deficit, Recovery, and Trends in Concordance from Birth to Nine Years", *Annals of Human Biology* 6, 1979, pp. 205-20; page 304 of R. S. Wilson, "The Louisville Twin Study: Developmental Synchronies in Behavior", *Child Development* 54, 1983, pp. 298-316

<sup>8</sup> The results of studies of the genetic component of intelligence are summarized by S. B. Malykh, N. V. Isoldsky and E. D. Gindina, "Genetic Analysis of IQ in Young Adulthood: A Russian Twin Study", *Personality and Individual Differences* 2005, pp. 1475-85.

In the study that Malykh *et al.* did, of Russian identical and fraternal twins between 16 and 28 years old, they found that genetic determinism accounted for 89% of the performance on the Wechsler Adult IQ Test. They also pointed out (page 1482), "shared environmental factors [i.e., family, neighbourhood, school] did not significantly influence individual differences in IQ in our sample. This finding is consistent with the summaries of cross-sectional studies of intellectual performance as well as longitudinal studies"

population) and an average of 16.9 years of formal education, that is, more than a Bachelor's degree.

Scarr and Weinberg's data were re-analyzed in articles by Michael Levin and Richard Lynn, in the journal *Intelligence* of 1994<sup>10</sup>. They pointed out that when the black adoptees were 17-18 years old, their average IQ was 16.2 points lower than the average IQ of white adoptees raised in the same families since infancy. That is exactly the difference between the average IQs of black and white adolescents in the area of the United States where they lived. The difference between the white and black children raised in the same family for school grades and tests of vocabulary, reading comprehension and mathematics was also the same as between whites and blacks in the area of the United States in which they lived.

In Handout I, I quote Bodmer and Cavalli-Sforza, who were hypercritical of all the evidence that had been amassed on genetic causation of racial differences in intelligence but conceded one type of proof would be valid: "The I.Q.'s of black children adopted into white homes would also have to be compared with those of white children adopted into comparable white homes." In Scarr and Weinberg's study, the IQs of blacks adopted by whites were compared not with the IQs of whites adopted into comparable homes but in the same homes.

So far I have been discussing only black and white adoptees in this study. It also included adoptees raised from infancy in these families who had one black and one white biological parent. Their average performance in school and on IQ tests and on tests of vocabulary, reading comprehension and mathematics was between the average of the adoptees who had two black biological parents and the adoptees who had two white biological parents. They included (Scarr and Weinberg 1976, pp. 732-3) twelve mixed-race children whose adopting parents mistakenly thought had two black biological parents. But their average IQ was the same as that of the other mixed-race children. Since many uninformed people think that the low IQ of many blacks is partially caused by their mother's

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<sup>9</sup> C. E. Finch and T. B. L. Kirkwood, *Chance, Development and Aging*, 2000, Oxford University Press, New York; P. C. M. Molenaar, D. I. Boomsma, C. V. Dolan, "A Third Source of Developmental Differences", *Behavior Genetics* 23, 1993, pp. 519-24

<sup>10</sup> Pages 13-21 and 21-27: "Comment on the Minnesota Transracial Adoption Study"; "Some Reinterpretations of the Minnesota Transracial Adoption Study"

poor nutrition, alcoholism, etc, it is worth adding that ten of the mothers of these mixed-race children were white.

Scarr and Weinberg's was the first study of the effects of white parents adopting black children; but two studies were done before theirs of children from Korea, Cambodia and Vietnam who were in adopted in infancy by white Americans; and one study was done of children from Korea who were adopted by white Belgians.<sup>11</sup> In all three studies the average IQ of the adopted children and their performance in school was better than the white average. That included children who were so malnourished when they were babies that they had to be hospitalized before they were sent to their adopting parents. As with Orientals everywhere in the world, these Oriental children who were raised in white families did much better on the parts of IQ tests that measure spatial intelligence than the parts that measure verbal intelligence; and, like Orientals everywhere, the subtest of the Wechsler IQ test on which they did the best was the block-design subtest.

So far, I have been outlining studies of the effect of adoption on intelligence and academic achievement. The effect of adoption on criminality has also been studied extensively. The largest sample consisted of nearly everyone adopted in Denmark between 1927 and 1947, over 14,000 adoptees. At birth, all the adoptees were taken from their biological mothers. A little over a quarter were immediately placed in their adopting homes; the rest were put in orphanages. Of the latter, a little over half were placed in their adopting homes before they were one. The age at which they were adopted had no effect on their subsequent criminality. I will quote from the most accessible summary, in *Science*<sup>12</sup>. (*Science* is the journal of The American Association for the Advancement of Science):

If neither the biological nor the adoptive parents are convicted [of a crime], 13.5 percent of the sons are convicted. If the adoptive parents are convicted and the biological parents are not, this figure rises to only 14.7 percent. However, if the adoptive parents are not convicted and the biological parents are, 20.0 percent of the sons are convicted.

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<sup>11</sup> Winick, Meyer and Harris, "Malnutrition and Environmental Enrichment by Early Adoption", *Science* 190, 1975, pp. 1173-5; Clark and Harnisse, "Intellectual and Adaptive Performance of Asian Children in Adoptive American Settings" *Developmental Psychology*, 1982, pp. 595-99; M. Frydman and R. Lynn, "The Intelligence of Korean Children Adopted in Belgium", *Personality and Individual Differences* 10, 1989, pp.1323-25

<sup>12</sup> Mednick, Sarnoff A. *et al.*, "Genetic Influences on Criminal Convictions: Evidence from an Adoption Cohort". *Science*, May 25, 1984, pp. 891-4.

So adoptees' rate of criminality correlated 5.4 *times* more closely with the rate of criminality of their biological parents, whom they never knew, than with the rate of criminality of the parents who raised them. But the force of genetics on criminality is even stronger than that because, "The mean number of convictions for the chronic[ally criminal] adoptee increases as a function of biological parent recidivism." This is extremely important because, although most criminals commit only one crime, most crimes are committed by chronic criminals. Only 4.1% of these adoptees were convicted three or more times, but they committed 70% of the crimes.

In the Danish study only adopted men were considered. A large-scale Swedish study of female adoptees found their rate of criminality is even more genetically determined than among male adoptees.<sup>13</sup>

These studies were long known and accepted by every serious student of this subject. As my discussion of their trans-racial adoption study makes clear, Scarr and Weinberg are at the extreme "Left" of the spectrum of researchers on the relative importance of environment and genetics. Nevertheless, while they were maintaining that adoption affects the black adoptees in their study, they kept on recording that all other adoption studies found that social environment has no effect. For example, in 1983<sup>14</sup> (pp. 264-6) they reported on an adoption study in which all of the adoptees were placed in their adopting families in the first year of life, at the median age of two months:

Adopted children's IQ scores were as highly correlated with their biological parents' IQ as were those of ... children who were raised by their biological parents.

The IQ correlation of adopted children reared together for 18 years was zero! [exclamation mark in the original] ... The effects of being reared in the same family, neighborhood, and school are negligible ... The aptitude and achievement scores in reading and mathematics were virtually unrelated.

We expected that genetic differences would account for substantial variation in IQ scores but would have nothing to do with social attitudes or vocational interest. Surprisingly, we found scores on the California *F*-Scale, a measure of authoritarianism, rigidity in belief, and prejudice, were similar for

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<sup>13</sup> J. Wilson and R. Herrnstein, *Crime and Human Nature*, 1985, Simon & Shuster, New York, p. 100

<sup>14</sup> "The Minnesota Adoption Studies: Genetic Differences and Malleability", *Child Development* 54, pp. 260-67.

biological but not adoptive relatives, even though the adoptees had been exposed to their parents' attitudes since infancy.

In vocational interest profiles ... once again, the expectation that children would model themselves after their parents was not fulfilled.

Also in 1983, Scarr and McCartney stated (pp. 429-32)<sup>15</sup>,

The major features of human development are programmed genetically.

The evidence from studies of biologically related and adoptive families that vary in socioeconomic status from working to upper middle class is that ... the large array of individual differences among children and late adolescents adopted in infancy were not related to differences among their family environments.

The intelligence correlations of a sample of late-adolescent adopted siblings were zero.

By late adolescence, adopted siblings do not resemble each other in intelligence, personality, interests, or other phenotypic characteristics. [They support this statement by citing three articles by Scarr and Weinberg.]

In her presidential address to the Behavior Genetics Society in 1987<sup>16</sup> Scarr said,

[The study of] genetic variability in behavior ... inflamed public opinion from the 1960s to the early 1980s. Then the outcries stopped, with the exception of a few eccentrics, such as Leon Kamin, Richard Lewontin, Steven Jay Gould, and Stephen Rose, who have audiences among the lingering social radicals. [Anyone familiar with the media's coverage of this subject will recognize these as the "experts" who are always cited as if their views are authoritative and orthodox.]

My interest in the possibility of genetic behavioral differences began when, as an undergraduate, I was told that there are none.

The lack of systematic environmental variability among adoptees led us to examine social-class effects. What difference does it make to be reared by a working-class or rural family, compared to a professional family? ... We were amazed to conclude ... that young adults do not resemble their family members on anything but genetic grounds.

Today there is virtually no dispute among responsible scientists.

While Scarr and Weinberg were reporting this, they thought that they had come up with one exception, their trans-racial adoption study, which, as I said, has been the most

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<sup>15</sup> "How People Make their Environments: A Theory of Genotype to Environment Effects", *Child Development* 54, pp. 424-35.

<sup>16</sup> Pages 219-21, 223, 228 of S. Scarr, "Three Cheers for Behavior Genetics: Winning the War and Losing Our Identity", *Behavior Genetics* 17, 1987, pp. 219-28.

cited proof of the influence of social environment on IQ. In the issue of the journal *Intelligence* in which Levin and Lynn re-analyzed their data, Scarr and Weinberg conceded, (p. 39): “We acknowledge that the evidence for the claim of beneficial effects of adoptive rearing environments was indirect and needs to be reevaluated”.<sup>17</sup> They also said that they were re-examining their data to try to refute Levin and Lynn’s findings.

However, Scarr has published only two later statements on this topic. She was one of the 52 experts on intelligence who signed the declaration entitled “Mainstream Science on Intelligence”, from which I quote in Handout III, which stated unequivocally that it is “regarded as mainstream among researchers on intelligence” that Jews and Orientals are genetically more intelligent than white Gentiles and blacks are less intelligent.

Scarr’s other publication on this issue was a review of *The Bell Curve*. I will remind you that her adoption study was the most frequently used counter-evidence to *The Bell Curve*. Scarr wrote about *The Bell Curve*,<sup>18</sup>

Merely giving every child the same opportunities that are enjoyed by most privileged children will not result in significant IQ gains for the less privileged.

Despite many efforts to prove otherwise, IQ tests are not culturally biased, and IQ is statistically related with many important educational, social, and economic outcomes.

No known intervention, ***INCLUDING ADOPTION***, [emphasis added] has been known to raise intelligence.

*The Bell Curve* alerts policymakers ... to the vast research literature on IQ, its heritability, and its social outcomes, and it spells out troubling facts on racial differences.<sup>19</sup>

<sup>17</sup> Pages 29-44: “Racial-Group Differences in IQ in the Minnesota Transracial Adoption Study: A Reply to Levin and Lynn”

<sup>18</sup> “Inheritance, Intelligence, and Achievement,” *Planning for Higher Education* 23, Spring 1995, pp. 1-9

<sup>19</sup> In November 1994, the Board of Scientific Affairs of the American Psychological Association established a task force consisting of eleven prominent authorities to prepare “an authoritative report” on “what has (and has not been) demonstrated by scientific research” about “the meaning of intelligence test scores and the nature of intelligence.” They met first in January 1995 and published their report in the February 1996 issue of *American Psychologist* (pages 71-101), the journal of the APA, under the title “Intelligence: Knowns and Unknowns.”

Among their conclusions were (pages 83-5, 88, 93-4, 96): “Many recent studies show that the speeds with which people perform very simple perceptual and cognitive tasks are correlated with psychometric intelligence [i.e. scores on IQ tests].” “Recent twin and adoption studies suggest that ... differences in the life styles of families ... make little long-term difference for the skills measured by intelligence tests.” Genetic determinism of intelligence increases with age, until by late adolescence the influence of family and socioeconomic background “is quite low (zero in some studies).” “Tests do not seem to be biased against African-Americans.” Racial and ethnic differences in IQ are not caused by differences in motivation, the dialect

### ***Identical Twins***

I have been discussing biologically unrelated people raised in the same family. Now I will discuss the opposite: identical twins, who come from the same fertilized egg and are, consequently, genetically the same person, who were raised in different families.

In Handout II, I quote from Walter Mischel's standard psychology text, *Introduction to Personality*. The project he mentions as being "now underway at the University of Minnesota" has been pursued intensively ever since. Professor Thomas Bouchard Jr, who directs it, began it in order to look for *differences* between twins; since, as he said, "For a psychologist, environmental effects are the most interesting."<sup>20</sup>

The average age at which the identical twins in the study were tested was 41 years and their average age of separation was 5 months. Yet they differ in IQ by only as much as the same person taking an IQ test on two different occasions. More remarkably, their scores on achievement tests in a variety of subjects are nearly the same, which means that they not only have the same aptitudes but the same interests. But the most remarkable finding was that the incidents of the lives were nearly identical.

These incidents are not completely identical because their genetic dispositions interacted with their social environments. So in one pair of identical twins, who were separated at the age of five days and did not know of each other's existence until they were thirty-one, one worked installing sprinkler systems, the other installing fire alarms. (Both were bachelors and volunteer firemen, who had risen to the highest position in their fire stations; both liked the same foods and movies, drank Budweiser beer with a pinky under the tin and differed in IQ by two points.)<sup>21</sup>

Some identical twins raised apart do have completely different occupations. One pair was separated when they were a little over a month old and did not meet again until they

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or vocabulary of the tests or by the person who administers them. No one has been able to devise a reliable and valid intelligence test that diminishes racial and ethnic differences. Socioeconomic differences in nutrition, prenatal care, intellectual stimulation, etc. cannot possibly account for the black-white difference in IQ scores.

<sup>20</sup> W. Wright, *Born That Way*, 1998, Alfred A. Knopf, New York, p. 34. As a student at Berkeley, Bouchard spent a day in jail for participating in a left-wing demonstration and says he would do it again today. M. Hunt, *The New Know-Nothings: The Political Foes of the Scientific Study of Human Nature*, Transaction Publishers New Brunswick, New Jersey, pp. 50-51.

were thirty-seven. At that time one was a steelworker and the other a records keeper for an electrical company. However both had been sheriff's deputies, drank Miller Lite beer, chain-smoked Salems, liked stock-car racing and disliked baseball. During the same winter both had driven a light blue Chevrolet to vacation on the same three-block beach in Florida. As children both had a dog named Toy. Both married a woman named Linda, divorced her and married a woman named Betty. Both scatter love notes for their wives around their house. One had three daughters and a son named James Allan, the other had three sons, one of whom was named James Alan. Then both had vasectomies. Both enjoy making furniture and picture frames and made nearly identical basement workshops, in which they put a work bench in the same corner. Both built a circular white bench around a tree in his front yard. No one else in either of their neighborhoods had similar benches.<sup>22</sup>

There certainly are traits that are not genetically determined at all. For instance, social background determines the language, dialect and accent a person speaks. An example is a British pair of identical twins, one of whom was raised from infancy by a lawyer and educated at elite private schools, the other was raised in a lower-class East London family. Naturally the former spoke Oxford-English and the latter spoke with a Cockney accent. But their IQs differed by only one point. (Wright 1998, p. 67; Seligman 1992, p. 94)

Although accent is environmentally determined, range and accuracy of vocabulary is not. An illustration is another set of British identical twins, one of whom was raised by a metallurgist, the other by the groundkeeper of a park. They learned of each other's existence when they were thirty-nine, when one of them needed a birth certificate for a pension plan. Their IQs were nearly identical, including the vocabulary subtest. Also, both had fallen down stairs at 15, weakening their ankles, went to work in local government, met their future husbands at 16 at a Town Hall dance. Both were married in large church weddings, complete with choirs, to men who worked for the municipal government and were described as quiet and conscientious. Both women miscarried in the same month in their first pregnancy. Both tinted their hair the same

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<sup>21</sup> D. Seligman, *A Question of Intelligence: The IQ Debate in America*, 1992, Carol Publishing Group, New York, pp. 97-8; N. Segal, *Entwined Lives: Twins and What They Tell Us about Human Behavior*, 2000, Penguin Putnam, New York, pp. 52-3, 144

<sup>22</sup> Wright 1998, pp. 26-9; Segal 2000, pp. 116-18; Seligman 1992, p. 96

shade of auburn, were squeamish about blood and heights, liked the same books, had been Girl Guides, hated mathematics, chose blue as their favorite color, had voted only once, when each was working as a polling clerk, liked coffee black and cold and loved chocolate and sweet liqueurs. Both laughed more than anyone they knew and gesticulated while talking, which both tried to control by sitting on their hands. Both had a habit of wrinkling their upper lip to push up their noses, which both had named “squidging”. When they met for the first time, both were wearing cream-colored dresses and brown velvet jackets and they greeted each other by holding up their little finger. (Wright 1997, pp. 44-5; Wright 1998, pp. 63-7)

Such similarities between identical twins raised apart from infancy are nearly universal, including among identical twins who were raised in more dissimilar circumstances than these two sisters.<sup>23</sup>

It might be objected that if any random pair of people is studied, similarities could be found. *A priori* that is extremely unlikely. But there is need to rely on probability. Bouchard and his team asked the fraternal twins, who come from different fertilized eggs and have no more in common than other siblings, in their study to search their pasts, likes and dislikes, etc to find similarities like those nearly invariably found among identical twins. None could find such similarities.

One of the most surprising discoveries of the past twenty years that adoption and twin studies have found is the high heritability of social attitudes and opinions. In fact, when social attitudes and opinions were first introduced into an adoption study, in 1981, they were intended as a control factor, on the assumption that they had no genetic component. (Plomin 2001, p. 246)

However, in two studies in Britain and one in Australia, adoptees were asked for their opinion about topics such as the death penalty, school uniforms, coloured immigration, patriotism, horoscopes and censorship, and statements such as:

War is inherent in human nature.

Production and trade should be free from government interference.

Crimes of violence should be punished by flogging.

People must realize that their greatest obligation is to their family.

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<sup>23</sup> Seligman 1992, pp. 77-8, 81-7, 92-103; Wright 1998, pp. 67-71; L. Neimark, “Nature’s Clones”, *Psychology Today*, August 1997, pp. 39-40

Most religious people are hypocrites.  
 The church is the main bulwark opposing the evil trends in modern society.  
 There is no harm in travelling occasionally [in a train] without a ticket, if you  
 can get away with it.<sup>24</sup>

The effect on their opinions of the families in which the adoptees were raised was zero.<sup>25</sup>

In 1999, Lindon Eaves *et al.* concluded a study of the personality traits and attitudes of nearly 30,000 American adult identical and fraternal twins and their relatives - parents, children, cousins, uncles, etc. - by observing,

The total contribution of genetic factors to differences in personality and attitudes is significant and pervasive. ... One of the truly remarkable findings to emerge from behavior genetics over the past twenty years is the replication and consistency of findings about the [genetic] transmission of personality and social attitudes in different studies using different approaches and methods of analysis.<sup>26</sup>

### **Severe Early Childhood Deprivation**

The best known case of severe childhood deprivation is “Isabelle”. Her mother was a deaf-mute. Her mother’s parents were mortified when their daughter became pregnant. So when “Isabelle” was born, her grandparents kept her and her deaf-mute mother in a dark room for the first six and a-half years of her life. When she was discovered,

Lack of sunshine and inadequate diet had caused Isabelle to become rachitic. Her legs in particular ... were so bowed that as she stood erect the soles of her shoes came nearly flat together ... Her behavior toward strangers ... was almost that of a wild animal ... In many ways she acted like an infant. She

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<sup>24</sup> L. J. Eaves, H. J. Eysenck, N. G. Martin, *Genes, Culture and Personality: An Empirical Approach*, 1989, Harcourt Brace Jovanovich, New York, pp. 333, 427-9

<sup>25</sup> Eaves *et al.* 1989, p. 387; D. C. Rowe, *The Limits of Family Influence: Genes, Experience and Behavior*, 1994, pp. 86-9

<sup>26</sup> L. J. Eaves *et al.*, “Comparing the Biological and Cultural Inheritance of Personality and Social Attitudes in the Virginia 30,000 Study of Twins and their Relatives”, *Twin Research*, 2, 1999, pp. 62-80. The quotation is from page 78.

If interested, see also T. J. Bouchard *et al.*, “Evidence for the Construct Validity and Heritability of the Wilson-Paterson Conservatism Scale: A Reared-Apart Twins Study of Social Attitudes”, *Personality and Individual Differences*, 34, 2003, pp. 959-69. On page 963, Bouchard *et al.* pointed out, “None of the FES [Family Environmental Scale] or BEQ [Block Environmental Questionnaire] correlated with Conservatism [holding conservative opinions] in the adoption sample.”

was apparently utterly unaware of relationships of any kind. ... At first it was even hard to tell whether or not she could hear, so unused were her senses.

It is impossible to imagine greater sensory or intellectual deprivation than spending the first six and a half years of your life in a dark room with a deaf-mute. But within two years of Isabelle's discovery, her vocabulary, ability to speak, read and write and her IQ were in the normal range for white middle-class American children of her age. She was graduated from high school with a good record. Moreover, "she gave the impression of being a very bright, cheerful, energetic little girl, who spoke well".<sup>27</sup>

Similar to "Isabelle" were two identical twin boys in Czechoslovakia.<sup>28</sup> They were seven years and three months old when they were taken away from their father and stepmother, after having lived with them since they were eighteen months old in severe sensory, nutritional and intellectual deprivation. Their living quarters was a small, unheated closet and they were often locked in the cellar for long periods of time. They were not allowed out of their house or into its main living areas, and the other children in the family were forbidden to talk to them. This did not constitute the total isolation that "Isabelle" endured, but the twins were treated more brutally. Once their father beat them with a rubber hose until they lay flat on the ground unable to move. Their stepmother used to beat them with wooden kitchen spoons until they broke. When they were examined, at the age of seven years and three months, their scalps were badly scarred.

The twins also suffered physically from lack of adequate food, fresh air, sunshine and exercise. ... [When they were seven] the father brought one of the boys to a paediatrician, asking for a certificate that his son was unfit to enter primary school. Because the boy looked as if he were only three years old ... hardly walked, and was at first sight severely mentally retarded, the doctor agreed to postpone school entry.

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<sup>27</sup> K. Davis, "Final Note on a Case of Extreme Isolation", *American Journal of Sociology*, 52, 1946-47, pp. 432-7; A. Jensen, *Straight Talk about Mental Tests*, 1981, Free Press, New York, pp. 181-2

<sup>28</sup> J. Koluchová, "Severe Deprivation in Twins: A Case Study", in A. Clarke and A.D.B. Clarke (editors), *Early Experience: Myth and Evidence*, 1976, pp. 45-55; J. Koluchová, "A Report on the Further Development of Twins after Severe and Prolonged Deprivation", in A. Clarke and A.D.B. Clarke (editors), *Early Experience: Myth and Evidence*, 1976, pp. 56-66.

Both boys also suffered from acute rickets. Even after several months of improved treatment, “They had to be brought to kindergarten in a wheelchair, because they could barely walk, and when given shoes, they could not walk at all.” When they were taken away from their father and stepmother, at the age of seven years and three months, they reacted

with surprise and horror to objects and activities normally very familiar to children of their age – e.g. moving mechanical toys, a TV set, children doing gymnastic exercises, traffic in the street, etc. ... The spontaneous speech of the boys was extremely poor ... they were not used to speech as a means of communication. ... [They] could not understand the meaning and function of pictures.

But by the time they were nine, “the boys were agile, cheerful and popular; there were no signs of eccentricities or troubles in the social sphere.” At the age of fourteen, “They love reading, ride bicycles, can swim and ski; they play the piano well and they have creative and technical talent.” Their IQs were 100 and 101. That is average for whites and much higher than the average IQ of blacks who were raised from infancy by abnormally well educated and intelligent parents.

Long-term studies of large numbers of children have also found that the way parents treat them does not affect them intellectually or emotionally when they are adolescents and adults.<sup>29</sup>

Jerome Kagan found that among American Indian children in an isolated, subsistence farming village in the highlands of Guatemala called San Marcos,

As a result of parental treatment, frequent illness, lack of experiential variety and malnutrition, the one-year-olds were quiet, non-smiling, minimally alert, motorically flaccid and temperamentally passive. This is in sharp contrast to ... middle-class American infants, who are vocal, smiling, alert and active. ... The Guatemalan infants were markedly less attentive than the American [infants] to visual and auditory events. ...

During most of the first year, the infant is tightly clothed and restricted to the inside of a windowless, dark hut ... The infant has no conventional toys ... and adults are minimally interactive with him

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<sup>29</sup> Ann and Alan Clarke, “Formerly Isolated Children”, in A. Clarke and A. Clarke (editors), *Early Experience: Myth and Evidence*, 1976, pp. 27-34; J. Kagan, “Resilience and Continuity in Psychological Development”, in A. M. Clarke and A. D. B. Clarke (editors), *Early Experience: Myth and Evidence*, 1976, pp. 97-121

However, at the age of five and older, when these children were given standard nonverbal American intelligence tests, they did as well as white American children. One of the tests that Kagan mentions is the Embedded Figures Test, in which children have to locate a triangle embedded in twelve color drawings of familiar objects:

This was the first time that many rural children had ever seen a two-dimensional drawing and most of the five-, six- and seven-year-olds in San Marcos had no opportunity to play with books, paper, pictures or crayons. Nonetheless ... as with recall and recognition memory, the performance of the San Marcos child was comparable to that of his age peer in a modern urban setting.<sup>30</sup>

(American Indians have the same non-verbal intelligence as whites, but lower verbal intelligence.)

### **Common Sense**

It is extremely difficult to accept that the family in which a person is raised does not affect his intelligence, character or opinions. When people confront this information for the first time, they assume that something must be wrong with it. David Rowe began an article entitled “As the Twig is Bent? The Myth of Child-Rearing Influences on Personality Development”<sup>31</sup> by observing that a century of research has come to a conclusion that defies common sense. He pointed out that “hundreds of studies” have shown that the following aspects of family life do not affect the children raised in them: “social class, religiosity, home features (number of books, number of rooms), diet and nutrition, parental values, parental modelling, child-rearing styles, family size, divorce, maternal employment, father absence/presence”. He quoted from an article by McCrae and Costa in *Journal of Personality* 1988 (pp. 445-9): “It will doubtless seem incredible to many readers that variables such as social class, educational opportunities, religious training, and parental love and discipline have no substantial influence on adult personality.” Rowe mentioned that one reason that this seems incredible is that, because we feel strong emotional ties to our families, we assume that our families must have molded us.

Jerome Kagan (1976, p. 100) offered two other reasons for why we think that childhood environment influences the type of people we become. One is, “Each person feels a compelling

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<sup>30</sup> Pages 105-16 of “Resilience and Continuity in Psychological Development”, in A. M. Clarke and A. D. B. Clarke (editors), *Early Experience: Myth and Evidence*, 1976, pp. 97-121

sense of continuity and connectedness when he reflects on the experiences of his early childhood. This sense of the past's contribution to the present derives from man's need to regard his life as coherent". The second is the desire of people to be able to help their children. These tendencies cause what Ann and Alan Clarke called "selective perception" – when we think of the myriad events that happened to us and others as children, we assign significance to those that could have caused later development.<sup>32</sup>

Clarke and Clarke also point out, "The social worker or psychiatrist assessing the problems of a deviant or abnormal individual has traditionally directed his initial attention to early development. ... Both clinician and patient unwittingly act as mutual reinforcers in discovering anomalies in early life".

Rowe (p. 606) and McCrae and Costa (p. 448) point out that the discoveries made by studying adopted children and identical twins end the debates between the "major personality theorists inhabiting the pages of major personality textbooks"- Adler, Watson, Skinner, Erikson, Rogers, Horney, Maslow, Murray, etc – all "emphasizing child-rearing styles as formative of adult personality traits".

(Incidentally, Freud has stood up well to these discoveries, since basic to Freud's concept of the mind was that it is controlled by powerful, unchangeable, biological drives.)

Two prominent psychiatrists, Peter Neubauer, who is the head of the Freud Collection at New York University, and his son Alexander Neubauer, have tried to enlighten their colleagues about the implications of adoption and twin studies. Among their examples is a pair of identical twins who were separated in infancy. One was raised in England, the other in South America; they did not meet until they were thirty. The Neubauers report,

Both kept their lives neat – neat to the point of pathology. Their clothes were preened, appointments kept precisely on time, hands scrubbed regularly to a raw, red color. When the first was asked why he felt the need to be so clean, his answer was plain. "My mother. When I was growing up she always kept the house perfectly ordered. She insisted on every little thing returned to its proper place, the clocks – we had dozens of clocks – each set to the same noontime chime. ... I learned from her. What else could I do?" The man's identical twin, just as much a perfectionist with soap and water, explained

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<sup>31</sup> *Journal of Counselling and Development* 1990, pp. 606-11

<sup>32</sup> Page 259 of Ann and Alan Clarke, "Overview and Implications", in A. Clarke and A. Clarke (editors), *Early Experience: Myth and Evidence*, 1976, pp. 259-73

his own behavior this way: “The reason is quite simple. I’m reacting against my mother, who was an absolute slob.”<sup>33</sup>

Typically of people in our culture, both twins ascribed their behavior to parental, and especially maternal, upbringing. Either explanation on its own would have been plausible. But since they were identical twins raised 15,000 kilometers from each other, we know that the cause was genetic.

### ***A Priori Reasons for Absence of Family Influence***

There is an important reason for evolution to have made humans (and, as far as we can tell, other animals) impervious to family influence. The examples I mentioned of extreme early childhood deprivation illustrate how resilient genetic determinism makes people. If our mental acuity and emotional stability depended on the good fortune of being raised in the proper manner, humans would not have survived for long. That is especially true since if mental abilities and health depended on proper upbringing, even most people who are raised by conscientious, well-meaning parents would be terribly mentally defective.

The dominant belief in the contemporary Western world is that parental affection and displays of love are essential to the development of mental health. A typical highly regarded book on child care, Marriane Niefert’s *Dr. Mom’s Parenting Guide: Commonsense Guidance for the Life of Your Child*<sup>34</sup> states, “Make a point of giving daily nonverbal messages of love and acceptance, through eye contact, touching, and hugging. All children need physical expressions of love”.

But until recently this advice would have seemed anything but commonsensical. In Europe, throughout the Middle Ages and into the middle seventeenth century, infants and little children were “swaddled”: tightly bound so that they could not move their limbs or heads. When children were old enough to be allowed to move around, most European parents in the early modern period thought that their primary duty was to contain the

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<sup>33</sup> P. B. Neubauer and A. Neubauer, *Nature’s Thumbprint*, 1990, Addison-Wesley, Reading, Massachusetts, pp. 20-21. Other examples are discussed by Neubauer and Balzart in their lecture “Genetics and Psychotherapy” to the 1995 annual meeting of the American Academy of Psychoanalysis. It is the first of two sets of addresses on “Biological Factors in Personality Development: Their Influence on Psychotherapy”. They are available on audio-cassette from Audio Transcripts in Alexandria Virginia, which can be contacted by telephone at 703-3708273 and by email at [atltapas@aol.com](mailto:atltapas@aol.com). The discussant, Richard Friedman, observed how counter-intuitive are the pervasive, minute similarities between identical twins raised apart, including names of spouses, types of dogs, etc.

<sup>34</sup> 1991, Signet, New York, p. 77

Original Sin with which their children were born by crushing their wills with physical violence. John Robinson, the leading pastor of the Pilgrims, was reflecting the generally accepted view throughout Europe in the sixteenth and seventeenth century when he said, “[S]urely there is in all children ... a stubbornness and stoutness of mind arising from natural pride, which must in the first place be broken and beaten down.” Then, when their children were between seven and fourteen, most European parents sent them away, either to work as apprentices, laborers or servants in other people’s households, or to boarding schools. In these new surroundings, children and adolescents continued to be subjected to constant physical violence.<sup>35</sup>

More recently, eminent scholars at leading universities warned emphatically against the damage caused by spoiling children. The most influential American psychologist of the first half of the twentieth century, John Watson, in a chapter of his *Psychological Care of Infant and Child*<sup>36</sup> entitled, “The Dangers of Too Much Mother Love”, wrote, “Never hug and kiss them, never let them sit in your lap.”

The examples I have mentioned are all from the last few centuries of Western civilization. There are as many ideals of child-rearing as there are cultures.

Ralph Linton concisely illustrated how radically cultures differ from each other in their ideals and practices of infant care

He [an infant] may be laid naked on a hard plank (New Caledonia), tucked into a padded cradle (Plains Indians), or tightly bandaged from the neck down (southern Europe). He may be carried about constantly (Malaysia), or left alone half a day at a time (Alor). He may be fed whenever he cries (Malaysia), on schedule (modern America), or simply when it suits his mother’s convenience (New Guinea). He may be the petted center of family attention (Japan), or receive the minimum care necessary for survival (Alor). Training to control his excretory functions may be imposed within the first six months (Madagascar), or may be delayed until he can learn by imitating his elders.<sup>37</sup>

One more point should be made. Most people today think that the phenomenon of large numbers of children being raised in what are called “broken homes”, that is not being

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<sup>35</sup> L. Stone, *The Family, Sex and Marriage in England, 1500-1800*, 1977, Weidenfeld and Nicolson, London, pp. 6, 161-3, 167, 169

<sup>36</sup> 1928, W.W. Norton, New York, pp. 81-2

<sup>37</sup> Page 14 of “The Personality of Peoples”, *Scientific American*, August 1949, pp. 11-15.

raised by both their biological parents, is recent. In fact, a large proportion of the children who have ever lived throughout the world, and in many times and places most children, were raised during at least part of their childhood by step parents, distant relatives or complete strangers; because death was omnipresent at all ages, especially for women in childbirth. (Among the English upper-classes between the sixteenth and nineteenth centuries, in three out of four first marriages that were terminated by death within ten years, it was the wife who died.) As late as 1900, only 54% of marriages in France lasted longer than fifteen years, even though divorce was extremely rare.<sup>38</sup>

Clearly, if cognitive development and emotional health depended on correct upbringing, the human race would have perished long ago.

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I have outlined only a small fraction of the evidence for genetic determinism. Many other types of evidence are also important; for instance, the rate at which the cerebral cortex metabolizes glucose and brain size correlate closely with scores on IQ tests.

In the standard textbook, *Handbook of Intelligence*, published by Cambridge University Press in 2000, Vernon *et al.*<sup>39</sup> (pp. 245-50) reviewed every study that had ever been conducted of the relation of human brain size with some measure of intelligence – various intelligence tests, university grades, teachers’ evaluations, etc. They consisted of 54 independent samples, involving 56,793 subjects. Every correlation was positive. Wickett *et al.*<sup>40</sup> (p. 1096) observed. “There is no longer any doubt that a larger brain predicts greater intelligence. ... head size shows a positive correlation ... with IQ: this being consistently found throughout 100 years of research. Obviously replication of this effect is no longer required” These correlations exist among individuals within all races and among races. On average, Orientals have slightly larger brains relative to body size than Caucasians, Caucasians much larger than Negroes.<sup>41</sup>

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<sup>38</sup> L. Stone, *The Family, Sex and Marriage in England, 1500-1800*, 1977, Weidenfeld and Nicolson, London, pp. 54-8, 60, 80, 694 (note 29)

<sup>39</sup> P. Vernon, J. Wickett, J. Bazana, R. Stelmack. “The Neuropsychology and Psychophysiology of Human Intelligence”, in R. Sternberg (editor) *Handbook of Intelligence*, pp. 245-64

<sup>40</sup> J. C. Wickett, P. A. Vernon, D. H. Lee, “Relationships between Factors of Intelligence and Brain Volume”, *Personality and Individual Differences* 29, 2000, pp. 1095-1122

<sup>41</sup> J. P. Rushton and C. D. Ankney, “Brain Size and Cognitive Ability: Correlations with Age, Sex and Social Class, *Psychonomic Bulletin and Review* 3,1, 1996, pp. 21-36

No counter-evidence exists. What purports to be counter-evidence are either studies that receive great prominence in the media, which then do not report when they are proven to be bogus. A recent example is that listening to Mozart raises IQ. What happened was that one researcher, using a small sample, found that listening to Mozart raised their average IQ slightly for *ten to fifteen minutes*, and no subsequent researcher replicated even that finding. But for years, the media reported that listening to Mozart permanently raises IQ 10-15 points. Another purported source of counter-evidence are books that rely completely on blatant lies. These are also praised and constantly quoted in the media, although every review in a scholarly journal points out their fraudulence. Two of the most influential are Stephen Jay Gould's *The Mismeasure of Man* and Daniel Goleman's *Emotional Intelligence*. If anyone is interested, he can email me – my email address is at the beginning of Handout I - and I will email back an analysis of them that shows that they consist of conscious, deliberate lies.

In addition to fraudulent counter-evidence, opponents of genetic determinism use several theoretical arguments. Two are that all races are nearly identical genetically and there is no gene for race. Both these arguments rely on the public's ignorance of genetics.

It is true that all humans share 99.9% of their genes in common. But caterpillars and butterflies and tadpoles and frogs have exactly the same genes. What makes animals and plants what they are is the interaction among genes, the activation of certain genes at certain times and the rate at which messenger RNA is made from genes.

The same genes control the formation of the heads of humans and chimpanzees, but the genes that control the formation of the human jaw operate for a shorter time and those that control the formation of the human cranium for a longer time than the same genes do in chimpanzees. Evolution does not have to develop new genes to change a species or intra-breeding populations within a species any more than a modern novelist has to invent new words to write differently from Charles Dickens.

Because of the way genes function, there is no gene for race or intelligence. No-one ever thought that there was. There is also no gene for skin or eye color, hair texture, bone density, canine teeth, blood pressure and innumerable other traits that everyone recognizes to be genetically determined.

Another common theoretical argument is that the human races arose too recently for significant differences to develop. A glance at the most familiar of non-human animals, dogs, shows the absurdity of this argument. All dogs are members of the same species. Yet selective breeding creates breeds with radically different temperaments and abilities within a few generations. An especially relevant example is that in the mid-1940s a trainer of guide dogs named Clarence Pfaffenberger found that he could train only 9% of the dogs that started his program to perform the complex and demanding job of guiding the blind. He developed a series of problem-solving tests and bred the dogs that did well on them. By the end of the 1950s, he had developed dogs 90% of whom could be trained to guide the blind.<sup>42</sup>

W. T. Heron and his colleagues at the University of Minnesota created maze-bright and maze-dumb strains of rats in four generations. They began with normal rats. They mated with each other those who made the fewest errors in mazes and those that made the most errors. The difference in the average number of errors between the two strains were 6.7 in the first generation, then 10.8, 19.6 and 27.7 in each succeeding generation.<sup>43</sup>

Selective breeding among mice has also produced strains that differ by ten times in the amount of alcohol and psycho-reactive drugs (opium, cocaine, etc.) they voluntarily ingest and their reactions to them.<sup>44</sup>

A publication of the National Academy of Sciences observed, “Animal experiments have shown that almost any trait can be changed by selection”.<sup>45</sup>

These anti-genetic arguments rely on misrepresenting the hereditarian position as being based on the existence of immutable, “pure” races. But no one who studies this subject thinks that there is any such thing as a pure race or that there is any causal connection between race and intelligence. There is not even a casual connection between species and intelligence. The average intelligence of every species changes, as more or less intelligent of its members have more or fewer children.

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<sup>42</sup> S. Coren, *The Intelligence of Dogs*, 1994, Free Press, New York, pp. 191-3

<sup>43</sup> W. T. Heron, “The Inheritance of Maze Learning in Rats”, *Journal of Comparative Psychology* 19, 1935, pp. 77-89.

<sup>44</sup> J. Crabbe, J. Belknap, K. Buck, “Genetic Animal Models of Alcohol and Drug Abuse”, *Science* 264, 1994, pp. 1715-23.

<sup>45</sup> A. Jensen, “How Much Can We Boost IQ and Scholastic Achievement?” in the *Harvard Educational Review*, Winter 1969, pp. 30-31

The relative intelligence of the various human races is an empirical fact that is now true because in the past more or less intelligent of their ancestors had more or fewer children. The relative intelligence of races will undoubtedly change in the future. For instance, Orientals have extremely high spatial intelligence. In the United States eight times more Orientals are architects than the proportion of Orientals in the American population. But if a series of dictators in Japan systematically sterilized Japanese with high spatial intelligence, eventually Japanese would have low spatial intelligence; even though they would still have Oriental physical features.

An excellent example is Jews. Jews do not differ from other Europeans in appearance but who have extra-ordinarily high verbal intelligence. On most tests of verbal intelligence, the Jewish average is fully two standard deviations above the white average.

I should point out that the real and hypothetical cases of genetic change I have outlined involve radical, systematic intervention. Actual change in human population is much slower, especially because of a fundamental law of genetics called Galton's Law of Regression towards the Mean: that is, if parents are abnormal for a genetically determined trait, their children regress about half-way to the average of their gene pool. An excellent example of its operation is SATs. SATs are tests of verbal and mathematical reasoning that are required by most American universities for undergraduate admission. They are excellent measures of academic ability, which, oddly, is why they are not more used. When I was admitted to Columbia College in New York in 1960 I was a member of a class that was called from the time of its entry as "Dudley's Folly" because the Dean of Admissions, David Dudley, admitted nearly completely on the basis of SATs. When that class graduated, its members won more fellowships to graduate school than the graduating class of any other college in the United States. But the class was 90% Jewish. Of course, Dudley was immediately fired. A little later SATs were further de-emphasized on the grounds that they are unfair to "minorities". Since 1981 the Educational Testing Service, which administers SATs, has published information on the race of the test-takers and their parents' income and educational level. The children of black parents who have post-baccalaureate degrees (PHDs, Doctors of Medicine, etc) and earn over \$100,000 a year, which is the highest category, attain lower scores on both the verbal and math sections than

the children of whites and Asians parents who did not graduate from high school and have incomes below \$10,000, which is the lowest category.

Another frequent theoretical argument against genetic determinism is that we do not know what intelligence is. This argument relies on the public's ignorance of the nature of definition in science. It is worthwhile quoting at length Karl Popper, whom *Scientific American* described as "far and away the most influential philosopher of modern science":<sup>46</sup>

The role of definition in science is ... very different from what most people think. ... The scientific view of the definition "A puppy is a young dog" would be that it is an answer to the question "What shall we call a young dog?" rather than an answer to the question "What is a puppy?". (Questions like "What is life?" or "What is gravity?" do not play any role in science.) ... In modern science ... definitions ... do not contain any knowledge whatever, not even any "opinion"; they do nothing but introduce ... arbitrary shorthand labels.

In science, all the terms that are really needed must be undefined. ... We have been told for so long how important it is to get a precise knowledge of the meaning of our terms that we are all inclined to believe it. ... Philosophy, which for twenty centuries has worried about the meaning of its terms, is ... appallingly vague and ambiguous, while a science like physics, which worries hardly at all about terms and their meaning, but about facts instead, has achieved great precision. In science, we take care that the statements we make should never depend upon the meaning of our terms. ... That is why our terms make so little trouble.<sup>47</sup>

Generations of careful studies of all sorts have invariably found that scores on IQ tests are extremely closely correlated with and consequently predict success in activities that are called intelligent. For instance, children's IQs are extremely accurate predictors of the types of occupations they will enter and their success in those occupations. The reason that children's occupations correlate with their parents' occupations is only that more successful people are usually more intelligent and tend to transmit their intelligence to their children genetically.

The number of push-ups a person can do also correlates with (and therefore predicts) success at certain types of activities, but none of these activities require intelligence, as the

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<sup>46</sup> "The Intellectual Warrior", November 1992, pp. 20-21

<sup>47</sup> *The Open Society and its Enemies*, Volume II, revised edition, 1992, pp. 13-14, 18-19

word intelligence is normally used. So the number of push-ups that a person can do provides no indication of his intelligence

When Saint Augustine was asked whether he knew what time is, Saint Augustine answered, “Yes, I know what time is, except when I try to define it.”

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I hope you appreciate the importance of the subject I have been discussing. As long as human beings have existed, they have undoubtedly argued and debated about the causes of people’s conduct and abilities. Now we have the answer to this most important of all questions. Its importance is practical as well as theoretical. Every instance of institutionalized racial and ethnic discrimination in the world today is based on a demonstrably incorrect premise, that groups of people do not differ genetically in socially useful abilities; and, consequently, the greater success of some groups than others is attained through socially pernicious means and is a problem that must be solved. That demonstrably incorrect premise was also the cause of many horrors and catastrophes in the past, most notably the Holocaust.