

GENES, BRAINS, AND CULTURE: RETURNING TO A DARWINIAN EVOLUTIONARY PSYCHOLOGY

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A commentary on *Death, Hope, and Sex* by James S. Chisholm. Cambridge, UK: Cambridge University Press, 1999, 296pp.

Chisholm's central thesis is that the life histories of individual human beings (i.e., reproductive strategies, speeds of maturation, testosterone levels, mate-seeking and risk-taking behaviors—even age at death) are contingent upon stability of parenting. For Chisholm, desirable social-behavior traits, which emphasize long-term planning and conscientiousness, emerge from a background of predictable attachments, whereas antisocial, impulsive, and self-destructive traits result from unpredictable experiences. As one who early applied *r-K* life-history theory to human differences (Rushton, 1985), I applaud Chisholm's attempt to understand the particulars of human behavior in terms of the big picture of the evolution of hominoid life cycles. Unfortunately, his book is weakened by its failure to examine the genetic side of the coin.

Whether people provide stable environments for their children, or for themselves, and how they react to a variety of stresses and traumas, as well as other challenges and opportunities (even being wounded in combat; see True et al., 1993), is partly a function of the genes they inherit. Unfortunately, Chisholm is at a complete loss on how to unravel the nature-nurture conundrum, describing gene x environment interactions as “conceptually vapid” and relegating behavior genetic studies to a footnote (p. 71). His take-home message, that mind and morality are mainly a function of the family culture the child grows up in, is the conventional wisdom.

Chisholm and I once debated behavioral genetics following his publication in *Current Anthropology* of an early version of his book (Chisholm, 1993, 1994; Rushton, 1994). It is disappointing that he has still not come to grips with this material. A clue to why is offered by a secondary theme of his book, that there exists an “intense moral task of political planning” in that governments have a duty to ensure that all people grow to be equally empathic and with equal opportunity to “maximize future reproduction” (pp. 237-238). Perhaps he believes his political agenda would be compromised by any admission that individual life outcomes are partly due to genetic differences. (He begins his Preface with S. J. Gould's favorite

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quote from Darwin: “If the misery of our poor be caused not by the laws of nature, but by our institutions, great is our sin.”) Regardless, since in science ignorance is never to be preferred over knowledge, however supportive ignorance may be to a political agenda, I will expand on some of what I wrote in my earlier critique.

Twin and adoption studies have repeatedly demonstrated that people inherit their personalities and temperaments, their attitudes and values, and a whole complex of behaviors including mate-preferences and parenting-styles (Bouchard, Lykken, McGue, Segal, & Tellegen, 1990; McGuffin, Riley, & Plomin, 2001). As almost everyone now accepts, especially in the wake of the Human Genome Project, genes plainly do contribute significantly to people’s temperaments, abilities, and patterns of interest. They even help create the individual differences in empathy, nurturance, altruism, and aggression (Rushton, Fulker, Neale, Nias, & Eysenck, 1986) that Chisholm makes the basis for his Theory of Mind. But rather than present these data and tell his readers what, if anything, is wrong with them, Chisholm dismisses the issue.

By ignoring Bouchard’s famous studies of similarity in identical twins raised apart, Lumsden and Wilson’s (1981) path-breaking work on gene-culture co-evolution, and Scarr’s (1996) work on how children develop their own niches, he misses the point that genes work to channel development across many unpredictable gene-environment interactions. If they did not, adopted-away siblings would not grow to become so similar in their values and attitudes, with their degree of later resemblance being predicted by the number of genes they share. I review much of this literature in Chapter 3 of my book *Race, Evolution, and Behavior* (1995, 2000, 3rd ed.) and won’t do it again here. I shall, however, point to several excellent and highly readable introductions (e.g., Harris, 1998; Reiss, Neiderhiser, Hetherington, & Plomin, 2000; Segal, 1999).

Behavioral geneticists typically find that a 50% genetic plus 50% environmental model fits the data better than either purely genetic or purely cultural alternatives (such as Chisholm’s Attachment Theory). Genes provide an initial set point, along which environmental factors then move individuals up or down the continuum of reproductive strategies. The genetic leash, as Lumsden and Wilson (1981) note, may be a very long one, but it is nonetheless a very real and a very strong one. Only genetically-informed research designs (such as those using twins and siblings reared apart or adoptees) can pluck the flower of causation from the nettle of conflicting interpretation.

Another crucial topic sidestepped by Chisholm is IQ. He grants that intelligence is an adaptation to allow for tracking environments, and it is one component of his Theory of Mind, but for Chisholm it plainly takes a back seat to empathy. Thus, he ignores 100 years of research which show that the general factor of intelligence (*g*), plays a substantial role in predicting people’s adjustment, and thereby misses the single best predictor of social and economic success in Western society (Schmidt & Hunter, 1998; also Jensen, 1998). Low IQ also predisposes an individual to a number of less desirable life outcomes. As shown by Herrnstein and Murray (1994) in *The Bell Curve*, these include dropping out of school (-0.50), being dependent on welfare (-0.45), being absent from work for 4

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weeks due to injury or sickness (-0.30), having a first child out of wedlock (-0.26), and if married, being divorced within 5 years (-0.14), and, if pregnant, continuing to smoke (-0.14)!

IQ scores offer some of the strongest effect sizes in the behavioral sciences. They are highly stable over an individual's life (*rs* of .40 to .70 from infancy to older age). They correlate about 0.65 with elementary-school grades, about 0.55 with high-school grades, and about 0.30 with university-level grades. (The coefficient gets lower as poorer students drop out, narrowing the IQ range.) IQ correlates about 0.40 with the speed of learning a new job, and once learnt, how individuals perform when they are on the job. Dozens of large-scale studies carried out by the U.S. Employment Service and by the U.S. Armed Services find this to be the case. The more complex the task (e.g., nuclear weapons specialist vs. vehicle maintenance), the more predictive are the IQ tests (e.g., *rs* = .80 vs. .30). Higher IQ individuals eventually obtain more prestigious occupations.

Moreover, and despite Chisholm's attempt at obfuscation, the heritability of intelligence is now well established by numerous independent adoption, twin, and family studies. Particularly noteworthy are the heritabilities of around 80% obtained from studies of identical twins reared apart (Bouchard et al., 1990). Moderate to substantial genetic influence on IQ has also been demonstrated in studies of non-Whites, including African Americans and Japanese. Even the most critical of meta-analyses find IQ about 50% heritable (Devlin, Daniels & Roeder, 1997).

Among the studies Chisholm does choose to describe are those showing that American Blacks and Australian Aborigines have poorer life outcomes (teen pregnancy, crime, alcoholism, poor school performance) than do Whites or East Asians. However, he denigrates the "race" concept as "ultimately arbitrary and subjective" and claims that while these "race" differences are of "statistical significance" they are "without an iota of biological or evolutionary meaning" (1994, p. 44). But if "race" was an invalid concept and genes had little or no predictive power, the differences that Chisholm acknowledges exist at a statistical level would not show such a consistent pattern around the world.

For example, although IQ tests were invented by Whites and standardized on mainly White populations, dozens of studies now show that East Asians, whether tested in North America or in Pacific Rim countries, typically average higher than Whites, with group means in the range of 101 to 111. Caucasoid populations in North America and Europe typically average a mean IQ of 100. African populations living south of the Sahara, in North America, in the Caribbean, and in Britain typically have mean IQs of from 70 to 90.

Asians, Whites, and Blacks also differ on many of the life-history outcomes described by Chisholm but that are consistent with their mean IQ scores. For example, in the U.S., East Asians are considered a "model minority." They have fewer divorces, fewer out-of-wedlock births, and fewer reports of child abuse than Whites. More of them graduate from college and fewer go to prison. They also differ from Whites on a total of 60 other traits, including sex hormones, twinning rate, sexual behavior, and personality and temperament. These are documented in

Race, Evolution, and Behavior (Rushton, 2000), which also provides an evolutionary explanation of them based on life history theory and the Recent-Out-of-Africa Model of Human Origins. Modern *Homo sapiens* arose in Africa 200,000 years ago, expanded beyond Africa in an African/non-African split about 100,000 years ago, and then migrated east in a European/East Asian split about 40,000 years ago.

Chisholm only sporadically touches upon the evolution of the human brain, even though he recognizes that it plays a key role in the evolution of *r-K* life-cycle traits. He points out (p. 125) that increasing brain size led to longer gestation times and prolonged stages of development, including longer periods of juvenile helplessness, which led to the evolution of the role of fathers in parenting. Large brains are also important in the evolution and neurobiology of his Theory of Mind. But he omits discussion of the fact that brain size correlates over .40 with IQ, as shown by many state-of-the-art Magnetic Resonance Imaging (MRI) studies (reviewed in Rushton, 2000). The MRI brain size/IQ correlation of $>.40$ is substantial. For example, it is as high as the one between later adult IQ and social class at birth (which is also a proxy for parental IQ).

The MRI brain-size/IQ correlation provides a challenge to Chisholm's culture-only-theory. Although brain size is influenced by environmental factors, it has evolved mainly in response to selection for increases in behavioral complexity (that is, intelligence) and shows substantial heritable variance. Perhaps worst of all from Chisholm's perspective, brain size shows racial variation—whether at birth, 4 months, 1 year, 7 years or adulthood (Rushton, 2000). The brains of East Asians and their descendants average about 17 cm^3 (1 in^3) larger than those of Europeans and their descendants, whose brains average about 80 cm^3 (5 in^3) larger than those of Africans and their descendants. The pattern of increasing mean brain size from Africans to Europeans to East Asians is not based on a single isolated study or two. It has been corroborated many times in modern studies using wet brain weight at autopsy, volume of empty skulls using filler, volume estimated from external head sizes, and MRI. These race differences in brain size likely underlie their multifarious life history outcomes.

The adoption in the early 1990s of the moniker “evolutionary psychology” was not a mere name change. With it came the jettisoning of the consilient gene-based formulations of E.O. Wilson's (1975) *Sociobiology* and the Darwinian notions of individual variation. All people, it was now asserted, had the same “environment of evolutionary adaptation.” There are no important genetic differences, except perhaps sex differences, and differential reproduction need not be a concern because of the demographic transition (i.e., because of the claim that people in technological cultures would move to limit the number of their offspring). Individual and group differences were to be treated as “error variance,” mere noise, rather than potentially intelligible adaptations to different environments. So went the Ev. Psych. mantra. Instead, the gurus of evolutionary psychology argued, its focus should be the human mind that we all share (Barkow, Cosmides, & Tooby, 1992). But I am not alone in believing it time to correct this

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turn toward political correctness by not forgetting about individual variation in human nature.

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