

Rereading ‘Biogenetics of Race and Class’ 50 Years Later

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In 1968, long before the publication of Stephen J. Gould's *The Mismeasure of Man*, Herrnstein and Murray's *The Bell Curve*, or Arthur Jensen's *Bias in Mental Testing*, Irving Gottesman published a book chapter that addressed head-on the issues that would define the relationship between the genetics of social behavior and large-scale social theory for the next 50 years. That he could do so with his characteristic scholarly thoroughness and scientific tough-mindedness without once lapsing into regressive hereditarianism is a testimony to the scope of his scientific knowledge and the generosity of his intellectual spirit.

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In 1968, Irving Gottesman contributed a chapter titled ‘Biogenetics of Race and Class’ to the volume *Social Class, Race and Psychological Development*, edited by Martin Deutsch, Irwin Katz, and Arthur Jensen. Today the chapter's title sounds ominously old-fashioned, like something from the work of Cyril Burt. Burt was still alive at the time, representing the grand if retrograde tradition of biological theorizing about human psychological development dating to the 19th century and Francis Galton. Stephen J. Gould's *The Mismeasure of Man* (1981) was still more than a decade away; *The Bell Curve* (Herrnstein & Murray, 1994) is closer to the present day than it was to 1968; Jensen himself had not yet published any of his major works. Irv was 38 at the time.

One picks up the chapter today with a certain amount of trepidation. It had perhaps not yet become clear how much was at stake in writing about the relationships among the three biopsychosocial constructs of the title. The fourth theme of the chapter, individual differences in human intelligence, raised those stakes even further. One could imagine a young genetic theorist wanting to prove his biogenetic bona fides, and in so doing throw in his lot with the illiberal conclusions of the great but dated thinkers like Burt whom intellectual history had already started to leave behind. Conversely, one could imagine him making his alliance with the progressive theorists like Gould and Richard Lewontin, who rejected the basic biogenetic facts even as they becoming obvious, lest they be put to work in the interest of racism, eugenics, or social Darwinism.

Gottesman started his chapter with one of the great questions any writer about the biology of humankind must face: the scientific status of the linguistic construct of ‘race’. Like much of the rest of chapter, his language here sounds some-

what archaic, with its references to Caucasians and Negroes, but the outlook was actually forward-looking and informed; except for some population genetic data that obviously did not yet exist, much of it could have been written yesterday. Gottesman begins by rejecting the outdated ‘typological approach’ of Caucasians, Mongoloids, and so on, in favor of a view of a ‘population concept’ according to which racial groupings are expedient constructions built upon fluid evolutionary and ancestral realities. (The modern chestnut about race as a biological or social construct had not yet been formulated.) He cites the pragmatic view of Mayr (1963):

Biologically it is immaterial how many subspecies and races of man one wants to recognize. The essential point is to recognize the genetic and biological continuity of all these gene pools, localized in time and space, and to recognize the biological meaning of their adaptations and specializations. (p. 15)

Gottesman then turns to the question ‘Who is the Negro American?’ His answer to the question involves quantification of admixture in the years following enslavement, and the implications of admixture for the determination of physical characteristics like skin color and sickle cell anemia. One could wish that his answer had focused more strongly on the answer, ‘Negro Americans are former slaves’

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(he refers to Africans as having been imported to North America), but having been given the assignment of thinking about Black and White Americans genetically, he sticks to the task. He ridicules any attempt to use socially identified race, the 'one drop rule' or skin color as a method of investigating biological hypotheses about humans. He uses the data available at the time to reach an estimate of about 12% admixture in American Blacks that holds up reasonably well today, and his discussion of genetic drift versus selection as sources of genetic variability looks prescient given contemporary work (Novembre & Barton, 2018).

Gottesman then turns to the core of the chapter, 'Genetic Aspects of Race Differences in Intellectual Performance.' To a remarkable extent, all of the modern aspects of this zombie of a debate, which has bedeviled behavior genetics since its inception, were already in place. Gottesman concedes the observed difference in measured IQ scores (Jensen had not yet popularized *g* as a way of talking about intelligence) and estimates it at 10 to 30 points. He emphasizes that the crucial issue involves what is causing what:

It should be obvious that IQ tests do not directly measure innate gene-determined intellectual capacity but do measure current intellectual performance as defined by a particular culture or at least its psychologists.

Modern, *g*-oriented theorists of intelligence might cavil with the implication that intelligence is a somewhat arbitrary construction of culture-bound psychologists, but that is not the important point. Instead, what is crucial is that even an IQ measure that is carefully defined psychometrically is not a measure of 'intellectual capacity' as determined by genes or anything else; it is a measure of intellectual functioning, in the present tense.

The question of what causes the difference is the only one that matters, and Gottesman argues that on this question the genetic data have little to say. The basis of his case is elegant and still relevant. The fact that genetic differences among people are correlated with phenotypic (i.e., intellectual) differences says nothing about the potential malleability of the phenotype, as was widely accepted then and still is today. The important question, then, is about the range of phenotypic expression that is causally possible, conditional on a genotype. In human beings for whom randomized experimentation is impossible, the issue is almost impossible to answer definitively, which ought to be sufficient reason to avoid speculation about innate behavioral differences between groups of human beings.

Actually, there is a way to get an estimate of phenotypic variability for fixed genotypes: differences between identical twins. The distribution of absolute MZ differences in IQ, Gottesman suggests, is an estimate of how much variability one would expect given a completely fixed genotype. (In fact, it is almost certainly an *under*-estimate, because it is limited to the restricted range of environments to which the twin pairs were actually exposed.) One does not want to

know the mean of the distribution so much as the range — how much the expression of identical genotypes *could* differ — and Gottesman shows that the answer can easily be up to 20 points. The very biogenetics of IQ demonstrate beyond reasonable doubt that the malleability of intellectual capacity is more than enough to account for the group difference.

In the next section, Gottesman fleshes out this idea to develop the notion of a reaction range, which turned out to be one of his signature contributions to the theory of behavior genetics. His illustration of the concept, reproduced here as Figure 1, has become iconic. Remarkably, the divergence of the genotypic traces from left to right, which represent increases in genetic variance in more facilitative environments, anticipated the Scarr-Rowe interaction, the discovery of which Gottesman contributed to some 35 years later (Turkheimer et al., 2003).

A modern behavior geneticist with progressive inclinations might arrive at the last section of the chapter 'Genetic Aspects of Social Class Differences,' anticipating a satisfying prebuttal to the bell curve, but that (hypothetical, of course) reader will in some ways be disappointed. Gottesman was loyal as always to the broadly genetic hypothesis, and always too committed to the data to opt for easy politicized consistency. His authority on the subject is none other than Cyril Burt:

Sir Cyril Burt, an eminent English psychologist, has made intensive analysis and a spirited defense of the idea that class differences in intelligence are largely due to genetic variation ... It should be possible to examine the merits and degrees of validity of such positions without subscribing to social Darwinism or the sickness of race and class prejudice. (p. 35, references omitted)

Gottesman begins his discussion with Burt's (1961) famous analysis of intelligence and occupational status of fathers and children in Britain. These data show (unsurprisingly, today) that occupational status of the parents is substantially related to their own intelligence, and also to the intelligence of their children, although the latter relationship is noticeably attenuated. Thus, in Gottesman's words, 'It must follow that if the children ... are to have the same distribution of IQs when they grow up as the adults, a large number will have to change to a social class different from their fathers' (p. 37). So, even assuming that social class is caused by intelligence (rather than the other way around, which is hard to establish even under a genetic hypothesis) and intelligence is in turn caused by genes (a too-literal interpretation of the heritability of IQ, as would not be realized until much later), the most immediate genetic aspect of social class is generational mobility. Thus, Gottesman does arrive at a rebuttal of the (as yet unimagined) bell curve: under an informed set of biogenetic assumptions, the genetics of intelligence will not produce a genetically determined elite. Indeed, the inherent continuity and

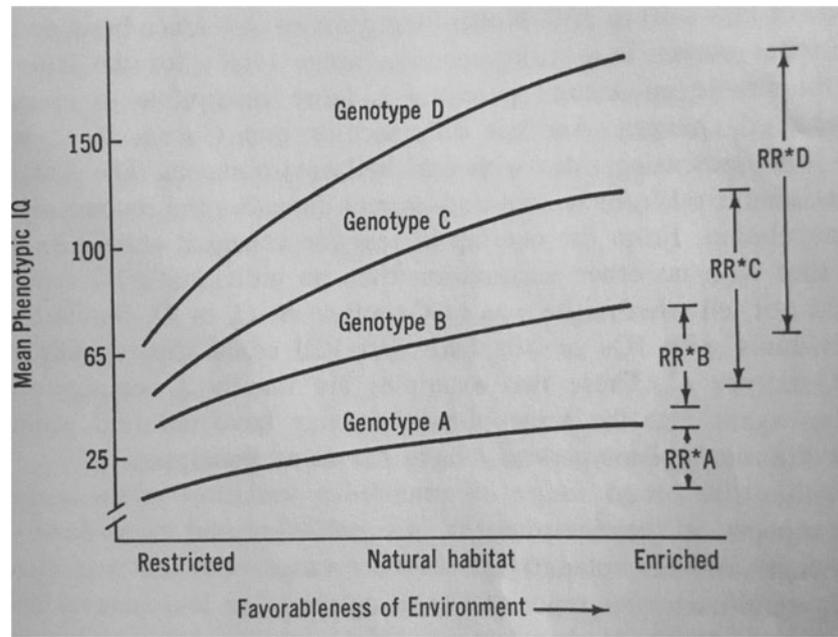


FIGURE 1

Scheme of the reaction range (RR^*) concept showing the interaction of heredity and environment (Gottesman, 1963).

randomness of polygenic transmission undermines the very notion of 'class'.

Finally, Gottesman considers race and class together. Isn't it a contradiction to say that racial differences in intelligence are environmental, but social class differences significantly genetic? No, and the difference is precisely that social class is fluid, whereas race, in any frame shorter than evolutionary time, is fixed by its social construction. Siblings do not sort themselves into different races on the basis of their intelligence, but that is exactly what they do for social class.

For general intelligence, then, the selection pressures from one geographical race to another have either not been sufficiently different or have not yet been in effect long enough to lead to significant differences in the genetic basis for this character *Within* a race or other Mendelian population that has occupational diversity and provides for social mobility, large differences in general intelligence between noncontiguous strata may have an appreciable genetic component. (p. 41, emphasis in original)

Gottesman closes with a consideration of the possibility of dysgenic forces acting on human intelligence, a concern of the Burt era that he rejects, and which we do not have to consider in detail here.

In *Biogenetics of Race and Class*, we see an early version of Irving I. Gottesman at his best: the deep attention to empirical detail that characterized his great books about schizophrenia; the unblinking commitment to the role of genetics in even the most complex and politicized

aspects of human behavior; the equally implacable abhorrence of racism and genetic determinism. Gottesman's career spanned the most crucial period of modern behavior genetics, beginning with the dawning realization that genes are involved in all human variability, replete with the social, and moral dilemmas that realization entailed. He was the first major figure in behavior genetics to unambiguously reject the reactionary social theories of Cyril Burt and his ilk while remaining fully in contact with scientific reality. (As opposed to someone like his contemporary Jerry Hirsch, a president of the Behavior Genetics Association and winner of its Dobzhansky Award, whose distaste for the reactionary politics of the old hereditarians led him to abandon the field wholesale). Gottesman's long career then lasted until the next great crisis in behavior genetics, when the availability of human DNA first frustrated and then transformed an enterprise that had by then become an established part of mainstream social science. That transformation, ironically, has now rekindled the old social questions that one might have hoped would finally be resolved. We now face those challenges without Irving Gottesman to show the way; one can only hope we are up to the task.

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