

Book Review

Gary Greenberg

Wichita State University
E-mail: Gary.Greenberg@wichita.edu

The Case Against Behavior Genetics

The Case Against Behavior Genetics: Review of Panofsky, A. (2014). *Misbehaving Science: Controversy and the Development of Behavior Genetics*. Chicago: University of Chicago Press.

It is a curious aspect of the sociology of science how some ideas become popular and capture the imagination. This was the case with late 20th century sociobiology (Wilson, 1975) and evolutionary psychology (Buss, 1999, 2005), both drawing substantial criticism from numerous quarters (for sociobiology: Hull, 1988; Lustig, Richards, & Ruse, 2004, and for evolutionary psychology: Lickliter & Honeycutt, 2003). The main points of contention centered around the continuing nature/nurture issue and the question of whether behavior, especially human behavior, was the result of genetic and biological determinism, and the manner in which evolutionary processes were applied to behavioral origins. It is safe to say that mainstream psychology is understood by many to be a biological science: that is, behavioral origins are seen to depend on genes, brains, and other biological processes. There is, however, another way to conceptualize psychology and its subject matter, behavior—as a developmental science in which biology is seen to play a participating but not a causal role (Bertalanffy, 1956; Greenberg & Partridge, 2010; Greenberg, 2011, 2014; Moore, 2015). These differing approaches to the science of behavior can be described in this way: “Behavior is a product of the brain, brains are made up of interconnected neurons, and neurons develop and function through gene-guided processes. The opposed view is that complex systems have emergent properties that are neither predictable nor explicable from their elements” (Panofsky, 2014, p. 139), the view favored by the book reviewed here and the present author.

This understanding of psychology has a long history and as pointed out by Lerner (2015a) can be seen as an amalgam, or blending, of ideas from many

quarters including Bronfenbrenner’s (1979) bioecological model, Riegel’s (1975) dialectal model, Lerner’s (1982) developmental contextualism model, Gottlieb’s (1997, 1998), and Ford and Lerner’s (1992) developmental systems model, Magnusson’s (1999) model of individual development, and Overton’s (1997) model of embodiment. If this seems somewhat complex, it is because psychology is among the most complex sciences. While physics has identified its variables and can express relationships with formulae, psychology has yet to identify all of the variables which influence behavioral origins. There is great hope in unifying these interrelated approaches under the umbrella of relational developmental systems models of behavioral development (e.g., Lerner, 2006a, 2015a,b,c; Lerner & Overton, 2008; Overton, 2013).

The book reviewed here deals critically with one particular aspect of biologism—the development of behavior genetics. The book is extremely scholarly and while offering a thorough critique of the issue, is mindful of Bertalanffy’s (1956) caution that, “Rejecting biologism does not mean we can neglect biology” (p. 34). A more contemporary cautionary note has been added by Moore (2015, pp. 6–7): “. . .because biology *contributes* to all psychological phenomena, trying to understand psychology with very little understanding of biology is a bad idea. . .” As Lerner (2006b) has expressed this, “No one would deny the ubiquitous role of genes, or of biology more generally, in human development” (p. 338). In the end, the book reviewed here can be seen as an important introduction to psychology, not as a biological science, but as a developmental science (e.g., Greenberg, Partridge, Mosack & Lambdin, 2006; Lerner, 2015a,b,c).

I opened this review with a reference to the sociology of science. Fittingly, *Misbehaving science* is written by a sociologist, Aaron Panofsky, from the perspective of the sociology of science. Panofsky is an Associate Professor in Public Policy and the Institute for Society and Genetics at the University of California, Los Angeles. His book explores the question of how the field of behavior genetics, which is today an especially reductionistic and deterministic approach to behavioral

Manuscript Received: 29 June 2015

Manuscript Accepted: 30 June 2015

Article first published online in Wiley Online Library
(wileyonlinelibrary.com).

DOI 10.1002/dev.21334 • © 2015 Wiley Periodicals, Inc.

origins, has survived decades of devastating conceptual critiques. The short answer provided by Overton (in press) is that

behavior geneticists have been able to focus attention on tractable empirical and technical critiques, and have avoided responding to deeper epistemological issues. In other words, they avoid any conceptual analysis and pay no penalty for this. As Panofsky says, “Behavior geneticists did not convince their opponents, settle controversies, and resolve the critiques of their paradigm, instead, they buried their opponents under a pile of repetitive results (p. 145).” Further, Panofsky argues that even the peer review process conspires to facilitate the avoidance of conceptual analysis. “Peer review is particularly constrained in its reach or effectiveness. In behavior genetics it tends to become focused on a narrow range of technical matters while deeper critical questions are not raised (p.147).

It is important at the outset to note Panofsky’s warning that “Misbehaving science is not the same as scientific misconduct. . . Misbehaving science. . . is about the ambiguity of rules [not about breaking them]” (p.10). Further,

Behavior genetics is a prime example of what I call *misbehaving science*. In misbehaving science controversy is persistent and ungovernable. Controversies wax and wane, sometimes they merge explosively, but they never really resolve and always threaten to reappear. . . Misbehaving science is due to relative social disorder within science. It is a situation where boundaries between science and non-science cannot be drawn successfully. . . Where scientific norms and standards are ambiguous, underdeveloped, or inappropriate to the situation, misbehaving science reigns (p. 9).

Panofsky’s telling makes clear that there are really two behavior genetics. The first was originally envisioned by scientists in the 1950s who were attempting to establish a new field which would be devoted to the genetics of behavior. The eugenics of Nazi Germany was not far from their minds. “Their aim was to create a unified, disciplinary field that would avoid the controversial, political potential of behavior genetics” (Panofsky, p. 14). Many of the original contributors to the field were animal behavior psychologists—indeed, the first text explicating the field was written in 1965

by John Fuller and William Thompson, an animal psychologist and was titled *Behavior Genetics*. Earlier, in the 1950s, John Paul Scott, another animal psychologist who was trained in genetics, had debated calling the field *biosociology* or *sociobiology*, while Calvin S. Hall referred to the field as *psychogenetics*. However, Fuller and Thompson’s name, *behavior genetics*, won out and is still the preferred label. Scott and Hall were associated with the Jackson Labs in Bar Harbor, Maine which was a “crucial node in the early organization of the network that would become behavior genetics” (Panofsky, p.44).

Alas, the original intent to avoid controversy did not last long leading to second iteration of behavior genetics, the one we are familiar with today. The racially charged IQ controversy beginning in the 1960s fueled by writings of Arthur Jensen (e.g., 1967) and William Shockley (e.g., 1992), promoted the idea that intelligence was mostly inherited, and especially less so by African Americans. Many still adhere to this pernicious belief which is largely responsible for contemporary behavior genetics, which after flirting with those racially charged ideas, continues its search for genes for almost every human behavior: “homosexuality, alcoholism, risk taking or thrill seeking, criminality and violence, schizophrenia, bipolar disorder, depression, *and so on*” (Panofsky, p. 156, emphasis added). Panofsky’s discussion of behavior genetics’ fall from grace is illuminating. The names of those involved reads like a veritable who’s who of 20th and 21st century psychology. However, some original players come out of this history unscathed—Jerry Hirsch is one. While he was an early champion of behavior genetics, even serving as an editor of its namesake journal, *Behavior Genetics*, he is well known as an outspoken opponent of the political and racially charged controversies that dogged behavior genetics in the 1970s (Hirsch, 1981). Surprisingly, this controversy has never really disappeared, as evidenced by the 1994 book, *The Bell Curve*, by Richard Herrnstein and Charles Murray which was seized on by behavior geneticists and others with a predisposition to believe that heredity is the central and determining factor in explaining race and class differences. It is of interest that mainstream geneticists have never really allied themselves with the behavior genetics movement. This is reflected in the comment by the eminent geneticist David Botstein who when “asked why so few geneticists had publicly criticized the *Bell Curve*, he responded, “The answer is because it is so stupid that it is not rebuttable” (Panofsky, 2015, p. 3). Indeed, Panofsky notes that there has been a “pragmatic desire of geneticists to dissociate the field from ...social and political controversy” (p. 27).

As Panofsky points out behavior geneticists had wanted to be seen as hard scientists, allied more with animal psychologists rather than human developmental social scientists, closer in their understanding of the scientific outlook as were neuroscientists. However, this was not to be. “Behavior geneticists [today] number somewhat less than 1,200 scientists—the approximate sum of the membership of the field’s three major societies [publishing in 10 specialty journals]. In contrast, the Society of Neuroscience had over 42,000 members in 2011 [publishing in over 300 journals] (Panofsky, p. 35)” Furthermore, behavior geneticists are “bunkered” in only a handful of institutions. “In 1985, over a quarter of [them] were concentrated in five universities, and almost 40% were in the top tenIn an ordinary disciplinary field we would not expect to see this kind of concentration” (Panofsky, p. 114, 115).

Panofsky’s history makes it perfectly clear that behavior genetics today argues “that genes and non-shared environment have the greatest impact on differences in behavior” (p. 158), an idea forcefully presented in a behavior genetics classic, *The limits of family influence* (Rowe, 1994). While there is much more to Panofsky’s fine book, including discussions of determinism and reductionism, and a passionate warning for how behavioral science is conducted—to avoid making “misbehaving mistakes,” Panofsky sums up the current state of behavior genetics in the following way:

In this world, in the wake of the IQ controversy and the archipelagic restructuring of the field, the confrontational and provocative way behavior geneticists valorized their scientific capital led to their occupying a narrow, genetic determinist, intellectual territory (p. 162).

The sad truth is that behavior genetics remains popular and as Panofsky points out (chapters 5 and 6) has had, in addition to its failures, remarkable success...but only if we measure success by the growth of research and funding that had poured into the field beginning in the late 1980s. Part of this success can be traced to the Human Genome Project and the promise that it would lead to the genetic understanding of psychiatric problems, understood by many to be biologically based. But, the Human Genome Project and the promises of

Molecular genetics has been a major disappointment, if not outright failure, in behavior genetics. Scientists have made many bold claims about genes for behavioral traits or mental disorders only to later retract them or to have them not replicated by other scientists. Further, the findings that have been confirmed,

or not yet falsified, have been few, far between, and small in magnitude (Panofsky, p. 172).

Panofsky’s history of behavior genetics is about a science gone wrong. It is a science whose proponents rely on “flawed reasoning and research of people using counterfactual models of genetic reductionism” (Lerner, 2015b; p. 68). In the end, we are drawn to the important question raised by Lerner (2006). “Why do we have to keep reinterring behavior genetics or other counterfactual conceptualizations of the role of genes in behavior and development” (p. 337) ? Why indeed, given the many nails driven into its intellectual coffin—the now classical accounts of Gould (1996) and Lewontin, Rose, and Kamin (1984) and the more recent critiques by psychologists such as Douglas Wahlsten (2012) whose assessment must surely be the final word: “*All hope of discovery has been lost. . . [I]n the realm of behavior genetic analysis of human traits in the normal range of variation, things such as intelligence and personality, there has been no real progress*” (p. 476, emphasis added).

This is a very strong book that I recommend highly to all who read this journal and to all with a developmental orientation to psychology. The major shortcoming of this book is Panofsky’s failure to identify the thirty-six “insiders” he interviewed for their perspectives and assessments. However, given the nature, thoroughness, and depth of his discussion we can be sure that his insiders were likely at the heart of the discipline, young, and old.

REFERENCES

- Bertalanffy, L. Von. (1956). A biologist looks at human nature. *The Scientific Monthly*, 82(1), 33–41.
- Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.
- Buss D. M. (1999). *Evolutionary psychology: The new science of the mind*. Boston: Allyn and Bacon.
- Buss, D. M. (Ed.) (2005). *The handbook of evolutionary psychology*. Hoboken, NJ: John Wiley.
- Ford D. H., & Lerner R. M. (1992). *Developmental systems theory: An integrative approach*. Newbury Park, CA: Sage.
- Fuller J. L., & Thomson W. R. (1965). *Behavior genetics*. New York: Wiley.
- Gottlieb G. (1997). *Synthesizing nature-nurture: Prenatal roots of instinctive behavior*. Mahwah, NJ: Erlbaum.
- Gottlieb, G. (1998). Normally occurring environmental and behavioral influences on gene activity: From central dogma to probabilistic epigenesis. *Psychological Review*, 105, 792–802.
- Gould S. J. (1996). *The mismeasure of man*. New York: Norton.

- Greenberg, G. (2011). The failure of biogenetic analysis in psychology: Why psychology is not a biological science. *Research in Human Development*, 8, 173–191.
- Greenberg, G. (2014). How new ideas in physics and biology influence developmental science. *Research in Human Development*, 11, 5–21.
- Greenberg G., & Partridge T., (2010). Biology, evolution, and development. In W. F. Overton (Ed.), *Cognition, biology, and methods*. Volume 1 of the *Handbook of life-span development*. (pp. 115–148). Hoboken, NJ: Wiley.
- Greenberg, G., Partridge, T., Mosack, V., & Lambdin, C. (2006). Psychology is a developmental science. *International Journal of Comparative Psychology*, 19, 185–205.
- Hernstein R. J., & Murray C. A. (1994). *The bell curve: Intelligence and class structure in American life*. New York: Free Press.
- Hirsch, J. (1981). To 'Unfrock the charlatans.' *Sage Race Relations Abstracts*, 6, 1–67.
- Hull D. (1988). *Science as a process*. Chicago: University of Chicago Press.
- Jensen, A. R. (1967). The culturally disadvantaged: Psychological and educational aspects. *Educational Research*, 10, 4–20.
- Lerner R. M., (2006a). Developmental science, developmental systems, and contemporary theories of human development. In R. M. Lerner (Ed.), *Theoretical models of human development*. Volume 1 of the *Handbook of child psychology* (6th ed., pp. 1–17). Editor-in-Chief W. Damon & R. M. Lerner). Hoboken, NJ: Wiley.
- Lerner, R. M. (2006b). Another nine-inch nail for behavioral genetics. *Human Development*, 49, 336–342.
- Lerner, R. M., (2015a). Preface. In W. F. Overton & P. C. M. Molenaar (Eds.), *Theory and method*. Volume 1 of the *Handbook of child psychology and developmental science*. (pp. xv–xxi) (7th ed.), Editor-in-Chief: Richard M. Lerner. Hoboken, NJ: Wiley.
- Lerner, R. M. (2015b). Promoting social justice by rejecting genetic reductionism: A challenge for developmental science. *Human Development*, 58, 67–69.
- Lerner, R. M. (2015b). Promoting positive human development and social justice: Integrating theory, research and application in contemporary developmental science. *International Journal of Psychology*, 68, 165–175.
- Lerner, R. M., & Overton, W. F. (2008). Exemplifying the integrations of the relational developmental system: Synthesizing theory, research, and application to promote positive development and social justice. *Journal of Adolescent Research*, 24, 245–255.
- Lewontin R. C., Rose S. P. R., & Kamin L. J. (1984). *Not in our genes: Biology, ideology, and human nature*. New York: Pantheon.
- Lickliter, R. & Honeycutt, H. (2003). Developmental dynamics: toward a biologically plausible evolutionary psychology. *Psychological bulletin*, 129, 819–835.
- Lustig, A., Richards, R. J., & Ruse, M. (Eds.), *Darwinian heresies*. Cambridge, UK: Cambridge University Press.
- Magnusson, D. (1999). Individual development: Toward a developmental science. *Proceedings of the American Philosophical Society*, 143, 86–96.
- Moore D. S. (2015). *The developing genome: An introduction to behavioral epigenetics*. New York: Oxford University Press.
- Riegel, K. F. (1975). Toward a dialectical theory of human development. *Human Development*, 18, 50–64.
- Overton, W. F. (1997). Beyond dichotomy: an embodied active agent for cultural psychology. *Culture and Psychology*, 3, 315–334.
- Overton, W. (2013). A new paradigm for developmental science: Relationism and relational-developmental systems. *Applied Developmental Science*, 17(2), 94–107.
- Overton, W. F. (In press). Taking conceptual analyses seriously. *Research in Human Development*.
- Shockley W. B., (1992). In R. Pearson (Ed.), *Shockley on eugenics and race*. Washington, DC: Scott-Townsend.
- Rowe D. C. (1994). *The limitations of family influence: Genes, experience, and behavior*. New York: Guilford.
- Wahlsten, D. (2012). The hunt for gene effects pertinent to behavioral traits and psychiatric disorders: From mouse to human. *Developmental Psychobiology*, 54(5), 475–492.
- Wilson E. O. (1975). *Sociobiology: The new synthesis*. Cambridge, MA: Harvard University Press.