

# Introduction

## *Why We Need a Nature/ Nurture Book in Criminology*

**D**oes the world really need another rehashing of the age-old nature versus nurture debate? Is there anyone left who actually believes that genes or the environment play absolutely no part in the development of human behavior (Pinker, 2002)? Are there really naturalists who think that only biology and genetics are entirely deterministic of our every thought and action? Are there any prophets of sociology left to proselytize the power of nurture, the unending sway of parenting, the overarching omnipotence of culture? While it is hard to imagine any serious scholar taking one of these extreme positions, it is safe to say that the nature versus nurture debate has yet to be resolved among criminological thinkers and that certain theorists have, at times, espoused viewpoints strikingly similar to the embellished statements made above (Pinker, 2002).

In daily discourse with colleagues, it is not uncommon to hear off-the-cuff quips suggesting that no one *actually* doubts the importance of biology (Cohen, 1999). Yet, in many ways, actions speak louder than words. At the time this chapter was written, the flagship journal in the discipline, *Criminology*, had never published a peer-reviewed article with a measured gene included in the analysis. Why? Is there a shortage of good molecular genetics research examining the correlates of antisocial behavior? Surely not. In fact, entire journals with impact factors in the low to mid double digits publish such research in practically every issue (see, for example, *Molecular Psychiatry*).

So do we need another tome dealing with the issue of environment versus biology? We submit that the answer to this question is “yes.” We need it now more than ever, because the field of criminology may be at a crossroads (Cullen, 2011). Down one path is the status quo. If we elect to travel this path, it means that we will continue to run multivariate models, conduct occasional experiments, publish studies, and convince ourselves that by ignoring the findings of other scientific fields they will somehow go away. Down the other path lie uncomfortable truths, many of which have direct implications for our understanding of human behavior. Truths like the fact that human beings are animals, no more or less special than any other

animal on this otherwise nondescript planet. Humans are a product of evolution, everything we are has been shaped either directly or indirectly by a “blind watchmaker” (Dawkins, 1986) clumsily assembling our complexities from preexisting parts. Down this uncomfortable road, moreover, lies the very real possibility that many of the sacrosanct findings gleaned from decade upon decade of criminological research might be wrong. Indeed, these are possibilities brought about by a biosocial criminology.

## The Biosocial Perspective

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So what is biosocial criminology, exactly? You might be surprised to know that we do not conceive of biosocial criminology as a unique discipline, *per se*. From our vantage point, biosocial criminology is more accurately conceived of as an amalgamation of several perspectives, all of which biosocial researchers draw from to conduct their own research. Specifically, there are five perspectives that inform biosocial scholarship: behavior genetics, molecular genetics, neuroscience, biology, and evolutionary psychology. Now, we should note that presenting things in this manner necessarily oversimplifies much of the nuance that exists within biosocial scholarship. However, what should become clear in the chapters to follow is that practically all research mentioned by biosocial scholars will be classifiable in one (or several) of these domains. Moreover, we are not going to burden the reader with heavy citation at this point, much of that will come later. For now, we only want to present you the rationale of why these disciplines inform so much of what biosocial scholars do on a daily basis.

Let us begin with the perspective invented to explain the origin of individual differences, behavior genetics (BG). The history of BG research reaches back to Francis Galton (with roots also attributable to other great statisticians and mathematicians such as Karl Pearson, Sewell Wright, and Ronald Fisher, to mention only a few luminaries) (Plomin, DeFries, Knopik, & Neiderhiser, 2013). As you will see, BG research is capable of answering several key questions concerning biosocial research: (a) do genes influence a trait, (b) does the environment influence a trait, (c) which has the greater impact, genes or environment, and (d) how do the two coalesce to influence human development?<sup>1</sup> Doubtless, the reader can readily see why BG techniques are such a vital component of biosocial research. This particular set of tools helps answer a fundamental question: why are humans so different from one another? More specifically, why are some humans so much more violent, aggressive, antisocial, and delinquent than others? BG research allows biosocial scholars to begin unpacking the answers to these core questions.

Molecular genetics (MG) is the next logical component of biosocial research. If BG research tells us that genes matter, MG research helps us understand which genes, or more broadly which sections of DNA (including nonprotein coding regions, perhaps) are integral for understanding human variation. In the years following the completion of the human genome project, there has been a veritable glut

of MG research examining a host of different outcomes ranging from disease to psychopathology, personality, and behavior. Because of MG research, current biosocial scholars are genuinely living through a “golden age” of science with the growing availability and accessibility of MG tools and analyses.

Travel up one more unit of analysis from MG research and you arrive in the arena of neuroscience. As Francis Crick (1994) so eloquently captured in his “astonishing hypothesis,” all human mental life—our morality, our decision making, our feelings of love and affection, as well as anger and rage—all reside and originate in our brain. Pause for just a minute and ponder the nearly inexplicable idea that all of *who you are*, the entirety of your mental life (your hopes, dreams, memories, aspirations, everything that is you) resides in a three-pound physical organ sitting atop your spinal column. The brain is a product of the genome, inasmuch as all of the capacity for building your brain comes preloaded in your DNA (Pinker, 2002). True, experience will help wire the brain in certain ways; brains do a fantastic job of importing and managing exterior information (i.e., learning) (Pinker, 2002). However, many of the genes analyzed in MG research are directly linked to structural and functional variation in the brain (Raine, 2008). As a result, neuroscience is an essential piece of the biosocial research agenda.

Our brains are not the only interesting component of our biology and physiology that might impact behavior. Broader still, biosocial research often examines additional biological markers (such as resting heart rate and skin conductance) that may act as proxies for various developmental traits such as low arousal (which might serve as a risk factor for impulsive and violent behavior). Hormone levels, as well, play a key role in social behaviors like bonding and feelings of aggression and more overt violent acts. As a result, biosocial research often makes use of measurements gleaned at the physiological and biological levels. Moreover, this line of inquiry has yielded much in the way of insight regarding the biological contributors to human behavior.

Finally, evolutionary psychology serves as an overarching meta-approach to the origins of human behavior (Pinker, 2002). Evolutionary psychology involves the simple recognition that if gradual modification through descent built all our internal and external structures—including the brain—then it must have exerted some influence over the development of human social behavior (Pinker, 2002). As we will see, evolutionary psychology offers a guiding framework for all that biosocial researchers do. If our theories fail to make sense in an evolutionary framework, then we should consider going back to the drawing board. Without the principles provided by Darwin and Russell-Wallace, there simply cannot be a thorough science of human (or any other animal) behavior.

Clearly, biosocial researchers draw heavily from many disciplines and perspectives. Even so, why wouldn't we conceive of biosocial criminology as representing its own discipline or subdiscipline? Our reasoning is simple. We view biosocial research as being indicative of the most viable and rigorous approach to studying human behavior. Unless we endorse creationism, mind-body dualism (in the sense that an immaterial soul, or “ghost in the machine” inhabits our corporeal bodies) (Pinker, 2002) or some other metaphysical explanation for behavior, our biology

and our evolutionary past must matter in terms of our behavioral outcomes. What this means is that biosocial criminology is not some niche subfield, it is—or rather it should be considered—criminology.

## Our Role in the Debate

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As the editors of this volume, which was designed to inspire debate and dialogue, we faced an interesting scenario in which our role was to act as mediators (of sorts) for our colleagues writing on behalf of sociological and biosocial perspectives of human behavior. A perusal of any one of our research agendas will unveil all three of us as biosocial scholars. We have, nonetheless, great respect for those who contributed chapters concerning sociological explanations of human outcomes. Indeed, most of the contributors are friends, and all are valued colleagues. Yet, on many points and critical assumptions regarding the origins of human behavior, we hold alternative viewpoints. This is not to say that sociology—and nurture-based perspectives more broadly defined—have nothing to contribute to our understanding of antisocial behavior and crime. But we, as editors, should lay our cards fully on the table. From our vantage point, a purely sociological explanation for any human behavior is unlikely to be incorrect. Instead, an understanding of social and biological forces is essential to capturing the full breadth of the mosaic that is human behavioral variation. As readers work through the individual sections, the ways in which biosocial scholarship parts company with sociological scholarship should become quite apparent. Please allow us now to briefly elaborate and to tell you, the reader, why we feel this way and what led us to this point in our careers (prompting the compulsion of this book).

## Converts to the Biosocial Perspective

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One of the key discussion points that repeatedly emerges when talking with biosocial scholars is how they converted to the biosocial perspective. Take, for example, the experiences of two of us (Boutwell and Barnes). Perhaps most fortuitous was that Beaver was a new faculty member—already deeply enmeshed in the biosocial perspective—when Brian Boutwell and J.C. Barnes arrived at Florida State University (FSU) for their graduate studies. Like most students, they entered into the program with very little background in biology, genetics, and evolutionary psychology. Boutwell completed his doctoral training in criminology. Barnes studied criminology and criminal justice, also receiving a doctorate in criminology. Our exposure, though, was to the same concepts, theories, and ideas that most of our colleagues experienced in their graduate and undergraduate training in various sociology, political science, and criminology/criminal justice programs. How, then, did we arrive at our current stance that biosocial research is perhaps the most appropriate method for studying human behavior?

Boutwell's conversion to biosocial science occurred during his first semester in graduate school at FSU. Many of the graduate students elected to enroll in a class known as *Proseminar*. In the course, a different faculty member would lecture each week regarding his or her particular substantive area of research, offering the students a broad overview of what the faculty as a whole was doing within the college. It was intended, in many ways, to jump start potential mentoring relationships between new students and current faculty. Each week, following the lecture, a group-based reaction paper was due, which included a general response to the topic of that week's presentation. Brian's group was assigned to write a reaction paper to the lecture given by Kevin Beaver. That week, Kevin discussed the broad strokes of biosocial research, offering a very general overview of the basic concepts and ideas. The reaction paper, interestingly enough, expressed concern and reservation regarding the dangers and moral questionability of biosocial research. On further reflection, however, Brian felt somewhat guilty about his incorrigible stance on a body of research that he knew nothing about; he sought Beaver out for a further conversation. That conversation blossomed into a broader discussion, which eventually led to collaboration, publication, and ultimately a mentoring relationship that continues to this day (Boutwell & Beaver, 2008).

Barnes's conversion to biosocial research involved far less resistance. He enrolled in FSU's doctoral program via the University of South Carolina's (USC) Master's program. Though he was not attending FSU with the intention of becoming a biosocial scholar, he was introduced to Kevin during his first semester and quickly developed a mentor-mentee relationship. Early discussions between Beaver and Barnes were not particularly "biosocial" but more broadly concerned current theoretical explanations of antisocial behavior. At some point, J.C. and Kevin conjured up a paper idea, which J.C. was to take the lead on. The paper required a brief discussion of genetic factors related to human behavior. J.C., recalling a lecture from his time at USC, pulled his notes from a filing cabinet and was surprised to find that he had taken extensive notes on the subject and had even written in the margins of several papers comments such as "this is the type of research I want to do."

Within a year of each other, Boutwell and Barnes became immersed in the work of behavior geneticists, psychiatrists, molecular geneticists, developmental psychologists, neuroscientists, and biologists. Terrie Moffitt and Avshalom Caspi's work, for instance, revealed the intimate connection between environment and genotype, and how ignoring either one produces an incomplete picture of human development. Richard Herrnstein and Charles Murray, along with other eminent scholars like Richard Lynn, Hans Eysenck, and Linda Gottfredson, revealed the far-reaching importance for traits like human intelligence on a host of outcomes that criminologists and sociologists spend a great deal of time trying to understand. The writing of Judith Rich Harris, perhaps one of the most important yet least appreciated child developmentalists ever, shook many of their closely guarded beliefs about the role of parenting in child development. And of course, the writings of Charles Darwin illustrated in a broad sense what true science should look like—unashamedly based in fact, carefully constructed, and logically assembled in a testable and falsifiable manner. The list could go on.

Ultimately, the evidence for Brian and J.C. became too overwhelming. Human behavior was a product of biology *and* the environment. In some cases, biology appeared to matter more, and in some cases it appeared to matter less. But in no instance was there a complete irrelevance for either biology or the environment when studying human behavior. Both are intimately intertwined and simply must be studied in all their interwoven complexity. For all three of us, there was no way around this fact. To operate in a void, only offering passing lip service to the importance of biology was simply not going to be good enough.

Oddly enough, however, it has recently become almost “fashionable” to do biosocial research. Indeed, one might argue that setting up a “debate” between sociology and biology is tantamount to erecting a straw man. As we have already mentioned, certain lines of research (like findings in molecular genetics) have yet to penetrate some of the top journals in criminology. More important, there are still areas that are staunchly off limits to biosocial scholars. Consider the experience of one of the editors while sitting in his office on campus. The door was open and a colleague entered to chat. The conversation was pleasant, until the visitor noticed a copy of Herrnstein and Murray’s *The Bell Curve* (1994) lying on the desk. This realization prompted an odd look from the colleague followed by a very interesting question, which we paraphrase here: “Why would you read such a book. Don’t you realize that it is a dangerous piece of literature?” You might have thought a rattlesnake lay curled on the desk. The idea had never entered the editor’s mind that the book, or any of its ideas, was dangerous. The editor responded by asking whether the individual had read the book. The response was a resounding “no,” why spend time reading something that simply had to be false?

Though it is a mere anecdote, the collegial conversation represents in a microcosm our experiences since converting to biosocial research. Indeed, there is evidence bearing on a larger trend in the field (Wright et al., 2008). A general rejection of biosocial research is clearly illustrated by Wright and colleagues’ analysis of over 600 criminology/criminal justice faculty members across 33 doctoral granting programs in the discipline. Of those faculty members, 12 reported any type of training or interest in the incorporation and examination of biological factors in relation to overt forms of antisocial and aggressive human behavior. As Wright and colleagues note, that represents a whopping 2% of the scholars who are responsible for training the next generation of criminological scientists. If one thinks that the field has moved past the need for a debate, perhaps one should reconsider.

## The Prospects of a Biosocial Perspective

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As academics, we are probably all familiar with the peer review process. An editor e-mails you, asks you to review a manuscript, and you gladly accept the honor. You open the document and begin reading, eventually arriving at the first table containing empirical results. In this case, the authors have constructed a wonderfully complex multivariate model, explained an acceptable amount of variance, and relayed their findings in a clear and cogent manner.



There is just one problem, and it is no trivial matter. The authors have omitted a key variable, indeed a lynchpin type measure that because it is not in the model makes their analysis virtually uninterrupted. It certainly looks like  $X$  influences  $Y$ , but  $Z$  is not in the analysis (and we know that  $Z$  is related to both  $X$  and  $Y$ ), so where does that leave us? It leaves us in that dreaded zone feared by methodologists and theoreticians alike and known as a spurious result. In other words, the findings may be entirely illusory owing to unmeasured and omitted factors. As a reviewer, there are really only two options at this juncture: reject the manuscript or recommend revision if you believe the authors can somehow manage to include the measure they previously omitted from their analyses. Either way, the study would not be acceptable in its current form.

Now consider this in relation to the incorporation of biology into criminological research designs. For the sake of brevity, we are not going to review findings here (those are available in later chapters). Yet what will become clear is that the impact of biology on human behavior is ubiquitous. While the magnitude of the effect varies, the impact of biological factors (e.g., genes, evolution, etc.) is unlikely to ever be zero. Essentially, biology represents variable  $Z$  in the example above. Because variable  $Z$  was omitted from the study we were asked to review, we arrived at the conclusion that the paper was unacceptable. It was a basic methodological concern/issue. Was the study rigorous, did it account for all possible sources of bias? Our take on this in the example was no, it failed to meet a certain standard of rigor. Thus, we rejected the paper (or recommended sweeping changes). For some reason, though, criminologists have largely failed to take these same steps if variable  $Z$  represents a biological construct.

The issue at hand, then, is elementary. The reason that biosocial research is essential is because it represents a rigorous approach to studying human behavior allowing for the estimation of biological effects. Oddly enough, for example, behavior genetic methodologies (to illustrate the point) represent one of the most effective tools for studying the environment. Why? The answer is that behavior genetic methodologies allow the researcher to tease apart the influence of genes and the environment to isolate the effects that one might be interested in examining (e.g., the effect of peer group environments). Put differently, behavior genetic research allows the researcher to control for  $Z$  in order to examine the effects of  $X$  on  $Y$ . We are not suggesting that one should not study the environment, only that scholars in criminology should do it in a fashion that allows for the variance due to biological factors to be removed. This is not an exceptional or inflammatory request.

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## What to Expect Moving Forward

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The idea for this book was born out of conversations among the editors lamenting the fact that criminologists and criminal justices had yet to have an open and honest dialogue about the nature versus nurture issue. We wanted to offer a forum in which both sides of the debate could be heard from and have an opportunity to present their perspectives. One thing that readers can expect as they progress

through each section is that they will encounter an expert in the given area writing about the topic in a very thorough and clear manner. Moreover, we hope that each chapter provides a natural contrast to its sister chapter in a way that gives readers the ability to examine the nature of a given topic from both a sociological and biosocial perspective. Ultimately, we hope this text compels scholars to open an objective discourse about these issues because discussion and testing of ideas is the only way we can move forward as a field. Thus, we offer the following text as a modest step toward such an open, objective discourse. Time will tell, and we will anxiously watch and continue to do our work.

As a final concluding thought, we should not forget that being a scientist is a high calling, not everyone has the luxury of being one. Moreover, the exercise of studying human behavior is no mere ivory tower exercise. Humans often do terrible and unspeakable things to one another. The questions we try to answer as criminologists are meaningful, and they have consequences that reverberate in the real world. It stands to reason, then, that we should utilize every tool available to us as scientists to ensure that answers to questions like “what causes crime” are correct. We leave you, the reader, to contemplate these issues as you enter the debate between social and biosocial scholars.

## Note

1. By using the term *impact* we are misconstruing (although not entirely) the actual function of BG research. BG research functions to explain “variance” in a given trait. Thus, the reason that BG research is the science of individual differences is because it explains why humans vary so widely on various measures of physiology, personality, and behavior. Ultimately, the way in which BG research quantifies the sources of human variation is by decomposing trait variance into the components of heritability, shared environment, and nonshared environment, which are explained throughout the course of various biosocial chapters in this book.

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