

## Introduction

### EXPLORING GENETICS AND SOCIAL STRUCTURE<sup>1</sup>

This special issue was motivated by what appeared to be a strange paradox. Just about every week the *Science Times*—one of the places where science meets the public—enthusiastically reported on new research findings that revealed the genetic basis for something (intelligence, voting behavior, obesity, depression, sexual behavior, religiosity, orgasms, altruism and egoism, generosity, thrift, and, of course, earwax type). Aside from the earwax, the phenomena reported to be “genetic” were largely of sociological interest. Yet sociologists were rarely discussed in these articles. Meanwhile, the prevailing sentiment of the discipline appeared to be that the emphasis on genetic expression as explanation for human behavior and social outcomes was at best undermining sociological perspectives and at worst a return of the eugenicist project of the first half of the 20th century. The two reactions—enthusiastic embrace and uncritical adoption (as represented in the *Science Times*) and fear and loathing (from sociologists)—appeared to be in some tension. However, thinking about it a little more, one realizes that they arise from the same source: a naive overvaluation of “genetics.”

It is old hat now to point out that the observation of genetic expression on some behavior has to be “good” for sociology since it provides sociologists with a reason to focus on social structure. One could of course respond that we do not need new reasons, and the reasons we have work well enough. But if we join the community baseball team for exercise and discover, after a while, that we also benefit from attachment to the community, we need not reject either exercise or attachment as motivation. Likewise, we may not need a new motivation, but there is nothing gained by rejecting new reasons for doing something. The obvious fact is that genetic expression can only reveal itself through social structural change.

<sup>1</sup> Partial funding for this issue was generously supplied by the Robert Wood Johnson Foundation Health and Society Scholars Program at Columbia University. Although the conventions of double-blind review prevent us from identifying by name the persons who read and commented on the submissions that we received, we are deeply in their debt for their collaboration on this special issue. Correspondence may be directed to the *AJS* editorial office (ajs@press.uchicago.edu) or to Peter Bearman, ISERP, 814 SIPA Building, Columbia University, New York, New York 10027. E-mail: psb17@columbia.edu

The example that seems to resonate with the public is the fact that genetic expression for obesity can only be observed in societies that can produce food surpluses (a relatively modern phenomenon). One could find many other similar examples.

Our colleagues in the life sciences—system biologists, for example—now routinely begin their work with the observation of genetic expression and then focus on modeling the dynamic system(s) through which genes come to matter. That this is a sociological project is evident not least because many of the most complex elements to make sense of are social, not biological. In this respect, the observation of genetic expression at a particular time or in a particular context invites sociologists to study social structure, and specifically to study social structure in comparative and historical perspective. In the most positive vein, the current interest in genetics may provide a new lever for sociologists to escape what appears at times to be a hegemonic focus on just “our” society.

Three issues, at the least, appear to concern sociologists about genetics. The first concern that sociologists have about the observation of genetic expression is that if such expression is observed, it serves to legitimate existing arrangements, because, after all, they are “genetic.” For the same reasons that sociologists rejected functionalism, and with the same ease, it is possible to reject arguments of this kind. There are lots of bad ideas in the world, and this is an example of one of them. The second concern is that borrowing methods and data from disciplines engaged in research on the genetics of human behavior necessarily legitimizes those disciplines and runs the risk of distorting the sociological project. Ignoring the fact that the beauty of sociology as a discipline rests in its hybridity with respect to method and data, we can see that the articles assembled here suggest that this concern is unfounded. It is possible, for example, to arrive at sociological insight even from the application of behavioral genetics methods. The third concern that sociologists have, as indicated above, is that the focus on the supposed genetics of behavior is a eugenicist project in (not so veiled) disguise. This appears akin to the idea that the study of social movements is a revolutionary project in disguise. One needs only to read the literature to be disabused of the notion.

In any case, the genetics of behavior and outcomes is not the focus of this special issue. The articles collected in this issue may, as a by-product, consider and describe such expression, but their central aim is different. The goal of the issue is to open up new avenues for answers to the question, What can we learn about social structure and social processes, and what can we learn about our accounts about social structure and process, by “thinking about genetics”? The metaphor of the archive, though not perfect, may be useful. Social scientists now have a new archive to dig around in. That archive consists of all the research studies that map “genetics”

onto behavior, onto health, and onto social outcomes, and it consists of raw data for us, and others, to work with. This issue considers, early on after the opening of this archive, whether or not there is anything that sociologists can learn from working with, and thinking with, genetics. In short, the articles here are designed to answer the question, Are genes good to think with?

No one is expecting that a single foray into a new archive will change all of our current understandings, and many may conclude that the core sociological problems of what has indeed been a long century of sociology—social inequality, alienation and anomie, the problem of order, reification, ethnic and religious conflict, and discontent, just to select a few—remain untouched by the new insights that our poking around in this new archive will reveal. But we will never know if we do not look. It was in this spirit that we asked those who contributed to the issue to consider whether or not, by entering into this archive, we see something differently, see something different, or find at our disposal different ways to reveal aspects of social life that we have seen for a long time.<sup>2</sup>

The idea that thinking about genetics might serve as a useful lever for revealing elements of social structure not previously seen arose in a series of conversations organized in 2006 by the Robert Wood Johnson Health and Society Scholars Program at Columbia University. With funding from that program, Sara Shostak and Molly Martin (the associate editors of this issue) coordinated a small conference in which this theme was specifically addressed. At this conference, the idea of a special issue arose. With the support of the *AJS* editorial board, we issued an open call for papers. Our expectation was that we would receive a handful of papers, mostly those written by participants in the conference.

As with many expectations, this one was off the mark. We received far more submissions and, for lack of a better term, partial submissions, than we had expected. Many came from sociologists. Many came from scholars working in cognate fields. We rejected dozens of papers that were of great interest, asked for revisions of papers that gave reviewers pause, and suggested others for review at *AJS* in the general stream of work, outside the special issue. Throughout, our idea for the special issue was to achieve two goals simultaneously. The first was to publish the best work that came our way. The second was to publish papers representative of the

<sup>2</sup> The archive imagery here refers more to those places that historians crawl around in than to the archive as the system of forming and transforming statements existing at a given period within a particular society (à la Foucault). Those who overvalue genetics certainly fear that this archive will become the latter. Of course, this is exactly why it is important that sociologists take advantage of the fact that thinking with genetics speaks of genetics per se only as a by-product of producing knowledge about social contexts broadly construed.

breadth of work being undertaken in the discipline, as revealed by the submissions we received. We did not have clear ideas about what kinds of papers would find their way to us for review, but it seemed critical that the special issue should be a “big tent” in which all of the various modalities in which relevant work was undertaken would have a shot at publication.

As it turned out, the submissions that successfully worked their way through peer review broadly fell into three groupings, and this issue reflects those groupings. In the first group are articles that use data about specific polymorphisms. These articles concern very different outcomes, with one focused on alcoholism (Pescosolido et al.) and the other on educational outcomes (Shanahan et al.). In the second group are articles that concern heritability. In this issue three “heritability” articles are included, focusing on food (Martin), sex (Guo et al.), and happiness (Schnittker). Though the articles were not selected on this basis, the list covers some of the essential aspects of the human experience; we regret that no papers on rock and roll were submitted for review. The third set of articles more explicitly considers whether “genes” are things to think with and in what ways they are useful to think with. In this group there are four articles, which, serendipitously, form a ladder from the micro- to the macrolevel, moving from the individual (Freese) to the institutional (Morning), mesoinstitutional (Shostak et al.), and macrolevel (Penner). In short, the articles run the gamut with respect to diversity of modes of inquiry and sites for engagement. We hope that they are read (and evaluated) in terms of their ability to reveal a world that, because of their analysis, we can see now but could not necessarily see, or see as clearly, before.

Very briefly, I will discuss the main contributions of each article as a road map for the reader who would like to select only a few articles to study in depth. The articles appear in alphabetical order by author’s last name—there is no significance other than chance to their order—but strangely the first article is authored by an *F*. Freese’s article, “Genetics and the Social Science Explanation of Individual Outcomes,” argues that genetics can only influence major outcomes by first influencing the development of our embodied characteristics, especially psychological traits; that the challenges posed to sociology by behavioral genetics therefore are challenges primarily from psychology; and that because the importance of genetic differences depends on social context, sociologists need to develop theory about the aspects of social context that lead genetic differences to matter. Guo, Tong, and Cai, in “Gene by Social Context Interactions for Number of Sexual Partners among White Male Youths: Genetics-Informed Sociology,” illustrate how introducing molecular genetic measures into sociological analyses yields new insight into our un-

derstanding of social context. Drawing on the white male DNA sample from Add Health, Guo et al. show that, in school cultures shaped by early initiation into sex, the protective factor of the 9R/9R genotype relative to the Any10R genotype in the dopamine transporter gene *DAT1* is lost.

Martin's article, "The Intergenerational Correlation in Weight: How Genetic Resemblance Reveals the Social Role of Families," uses the lens of thinking about genetics to show how characteristics of families, and what families do, shape adolescents' weight whether or not they are predisposed to be thin or obese. In "Reconstructing Race in Science and Society: Biology Textbooks, 1952–2002," Morning shows how, after decades of the declining significance of race (in textbooks), race is now taught in high school science curricula, though with emphasis on genetic rather than phenotypical definitions, and with quite different empirical supports. By thinking about how genetics is deployed in science, Morning offers new insights about the complexity of race in America. Penner's article, "Gender Differences in Extreme Mathematical Achievement: An International Perspective on Biological and Social Factors," reports that gender differences in math achievement vary widely from country to country, suggesting that social factors play an important role in creating gender differences in mathematics achievement. In "Under the Influence of Genetics: How Transdisciplinarity Leads Us to Rethink Social Pathways to Illness," Pescosolido et al. show that, while there is strong evidence for risk of alcohol dependence associated with the *GABRA2* gene, residing in a context with strong social support virtually washes away the enhanced risk arising from genetic endowment, thus drawing our attention to the importance of social isolation in the observation of genetic expression for alcoholism.

Rodgers et al., in "Education and Cognitive Ability as Direct, Mediating, or Spurious Influences on Female Age at First Birth: Behavior Genetic Models Fit to Danish Twin Data," use a behavioral genetic analysis framework to demonstrate that family environment processes that lead families to be different from one another, instead of creating differences among siblings within the same family, are critically important for influencing parental age at first birth. Moving from sex to happiness, Schnittker's article, "Happiness and Success: Genes, Families and the Psychological Effects of Socioeconomic Position and Social Support," shows how, on one hand, the environmental factors related to happiness are influenced by genes. For example, satisfying friendships and a good job are heritable, even though we ordinarily think of these things as purely social. On the other hand, he shows that the genetic influences behind these factors do little to undermine the relationship between the environment and happiness. It follows that individuals are capable of creating their own happiness even as genetic influences are pervasive. In "Envi-

ronmental Contingencies and Genetic Propensities: Social Capital, Educational Continuation, and Dopamine Receptor Gene *DRD2*,” Shanahan et al. illustrate how behaviors are influenced by both genetics and the environment, where the environment is a complex of interacting social factors. In this case, continuation of schooling is influenced by *DRD2*, but the negative effects of *DRD2* are washed out under specific environmental contexts. By thinking with genes, Shanahan et al. identify new elements of the environment that sociologists should study. Finally, Shostak, Conrad, and Horwitz, in “Sequencing and Its Consequences: Path Dependence and the Relationships between Genetics and Medicalization,” consider when genetic knowledge leads to the medicalization of outcomes. For outcomes for which a gene marker has been identified, Shostak et al. are able to reveal the institutional nexus and path dependent pathways by which findings from genetic research are mobilized into public discourse and public understanding of homosexuality, depression, and negative health outcomes arising from environmental exposures, thereby contributing to our understanding of the dynamics of medicalization.<sup>3</sup>

The articles in this issue are little more than a start to an intellectual program whose end is unclear. If all that happens when sociologists look at genetics is that they report genetic effects on behaviors and outcomes that are of sociological interest, less will be gained than seems possible. Alternatively, future work can follow the path that the authors of these articles have begun to lay down by using genetics—and entering into the new archive—to learn something deeper about the social structures we live in and the mechanisms that give rise to those structures. Like a lot of other projects, this one is distinctly sociological.

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<sup>3</sup> While the two associate editors (Martin and Shostak) have articles in this issue, those submissions, like all others, were subject to double-blind review. While the issue in general would not have been possible without their editorial contributions, they were not consulted in the assessment of their own articles, and, in the final analysis, the composition of the issue was made independent of their input.