

Comparative Perspectives and Competing Explanations: Taking on the Newly Configured Reductionist Challenge to Sociology

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Sociology faces three important interrelated challenges in the coming decades. The first will be the increasing authority of reductionist science for which partial evidence is found in the strikingly imbalanced allocation of research funding for “causes” of wide-ranging problems—from disparities in health and educational achievement to explanations of alcoholism and violence. The second is the attendant expansion of databases on markers and processes “inside the body.” Directly but inversely related is the third challenge: new evidence that the release of already collected data sets is blocked and data collection on social and economic forces is reduced. These challenges can be confronted and addressed directly if sociologists emulate an earlier generation of sociological researchers and turn greater attention to an analysis of data collection at the site of reductionist knowledge production. This includes, for example, close scrutiny of new computer technologies assisting several DNA identification claims. It is insufficient to simply assert the arbitrariness of the “social construction” of these claims. Instead, the architecture of that construction must be demonstrated. Unless that is done, competing explanations (from various disciplines) will have far greater significance on public policy and on the particular discipline’s status with public and private funding sources.

The centennial of the American Sociological Association (ASA) is an appropriate time to step back and take a full sociohistorical view of how the discipline emerged and developed. Sociologists know well that the ways in which a field of inquiry is organized, professionalized, and institutionalized is a large part of its story—but it is only part of the story. Thus, the history of the association is not coterminous with the history of the discipline (for full history of the association, see Rhoades 1981 and Rosich 2005). There is often some contestation. This may be voiced by members of a group within a larger boundary who try to stretch the

field in new and uncharted ways, because they experience their group’s perspective as either thwarted or ignored. Those limits are sometimes pushed to the point of secession and reformation.

A clear illustration comes from the origins of the ASA itself as a “breakaway” organization, a recurring theme in the continuous unfolding and remaking of the discipline over the full century. In 1904, sociologists were part of the American Economic Society. The sociologists found the limiting focus upon markets and the economy too restrictive of their intellectual aspirations and research projects, and bolted from the economists to form the American Sociological Society¹

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¹ This was the original name and was changed to the American Sociological Association in the late 1950s.

in 1905—holding their first annual meeting in 1906.²

Similar to the sociologists' initial breakaway from the economists, the newly founded sociological association would in time reflect the iron law of oligarchic tendencies (Michels 1966). Achieving sufficient professional coherence to patrol the boundaries and shape what was legitimate, the association in turn spawned its own breakaway organizations in the 1950s and 1960s. A segment that wanted sociologists to have more engagement with pressing social issues separated to form the Society for the Study of Social Problems. The discipline was caught short by the Watts Uprisings of 1965 and its cascading effects over the next three years through the urban disturbances of Detroit, MI and Newark, NJ. African American sociologists wanted more focus on issues of racial injustice and they broke away to form the Association of Black Sociologists. Similarly, sociologists in the emerging feminist movement demanded more focus on gender issues and spun at least partially away from the ASA to form Sociologists for Women in Society. The tale goes on and on: the symbolic interactionists broke to form The Society for the Study of Symbolic Interaction, and those who wanted to see more applications of social science knowledge formed the Society for Applied Sociology. Yet if there is a common thread that bonds most of the discipline together, it is based upon a general acknowledgment of the powerful role that social forces play in explaining human social behavior. This has been a consistent century-long counterpoint to the tendency to deploy either individual level or even smaller units of analysis (blood, genes, neurotransmitters) to account for scholastic achievement, crime rates, and even racism.

COMPARATIVE PERSPECTIVES ON THE SAME PHENOMENON, ROUTINE FEATURE OF OUR LIVES

There is nothing unusual or strange about the idea of social position determining what an

individual sees. In the early twentieth century, Karl Mannheim's (1936) brilliant monograph spells out this tendency as one of the first principles of the sociology of knowledge. The obvious reason for different interpretations of what people see is that individuals bring very different personal and social histories, perspectives, sexual orientations, religious or secular views, and so forth.

Alfred Schütz (1955), the eminent phenomenologist, posits a fundamental domain assumption underlying human exchange inside a given group's boundaries, the so-called "assumption of the reciprocity of perspectives":

I assume, and I assume that my fellow [hu]man assumes, that if [s]he stood where I stand, [s]he would see what I see. (p. 163)

When that assumption is routinely violated, there are limited choices—one of those being to form a new group of like-minded people. Under certain conditions, that can be a healthy development, a strategy to nurture and strengthen a fledgling perspective. But the danger is that this can result in a retreat from engagement with alternative perspectives. This article is about a particular version of like-mindedness and is divided into three sections. Part one documents a series of developments in which a wide range of seemingly unrelated inquiries have something vital in common—an attempt to explain human behavior or health conditions by looking only at data *inside* the body. I focus primarily on health and crime, because these are areas on the cutting edge of high technology application in molecular genetics—areas I have worked in for more than two decades (including membership on the National Advisory Council for Human Genome Research). Similar observations could be made about other arenas and research programs in those arenas. Indeed, part two describes the increasing challenge to sociology, a dramatic tilt in data collection, research agendas, research programs, and funding decisions that lean in the direction of increasing data and information on processes inside the body—while de-funding or blocking access to research on forces outside the body. Part three suggests ways in which sociologists can meet this challenge by engaging in research on data collection at the very site of knowledge production to illuminate the social forces shaping the construction of knowledge claims.

² With some bemusement tinged with considerable irony, the *Guardian* reported on the 99th annual meeting of the ASA and subtitled the article, "US Sociologists Are Finally Challenging the Intellectual Stranglehold of Economists" (Steele 2004).

PART I: DISCOVERY OF COMPETING PERSPECTIVES ON “BASIC PROCESSES”

During the mid-1970s, the National Academy of Sciences (NAS) convened a group of academic researchers (social as well as natural scientists) to address the state of knowledge about mind-altering substances. The multidisciplinary panel was composed of individuals with experience in research on mind-altering substances. Some had expertise with drugs like heroin and cocaine, others with psychotropic medicine, others with alcohol. When the topic turned to alcohol, the question was posed, “Why is the rate of alcoholism so high among Native Americans, Aborigines in Australia, and in Canada, First Nations’ People?” According to the Indian Health Service, for example, the age-adjusted death rate from alcohol was more than seven times higher for Native Americans than for the general U.S. population (Beauvais 1998:255).

I along with my fellow social scientists thought the answer was obvious. These three broadly defined groups all experienced two centuries of displacement: they were sometimes forcibly and sometimes violently removed from their native soil, frequently shunted off to land where they had no knowledge of the local terrain. As a result of this displacement, their diets were dramatically changed, social organizations and economies destroyed, family structures disrupted, circumstances of work fundamentally altered or obliterated. And finally, members of each group (Native Americans, Aborigines, and First Nations’ People) have been provided with easy access to cheap alcohol (Beauvais 1998; Beresford and Omaji 1996:1135; Spicer 1997). We thought, “That might drive some to drink!”

Our colleagues from the natural sciences (neurosciences and molecular genetics), looking at the same astronomically high rates of alcoholism, said that they were searching for neurotransmission patterns or specific genetic markers more likely to exist *in common* among Native Americans, Aborigines, and First Nations’ People. Indeed, one of the prevailing hypotheses was the claim of higher prevalence of “alcohol dehydrogenase polymorphisms in Native Americans” the ADH2*3 allele (Wall et al. 1997). Another claim is that Aborigines and Native Americans lack a protective gene mutation for the enzyme aldehyde dehydrogenase (Kibbey 2005).

All of us on the NAS panel were observing the same high rates of alcoholism among specific populations. The natural scientists—despite the overwhelming empirical evidence of social disruption—were committed to research they termed neuroadaptation at the molecular or cellular levels, seeking distinct neural circuits in the brain that explain the high rates of alcoholism in these populations. Instead, the social scientists were emphasizing the need to understand the role of forces outside the body for explaining the high rates of alcoholism among these three groups: social, historical, political, economic, and cultural forces. As early as 1835, Alexis de Tocqueville ([1835] 1966), while embracing the European perspective on the indigenous population of the United States as barbaric, nonetheless had this to say:

When the Indians alone dwelt in the wilderness from which now they are driven, their needs were few. They made their weapons themselves, the water of the rivers was their only drink, and animals they hunted provided them with food and clothes. The Europeans introduced firearms, iron, and brandy among the indigenous populations of North America; they taught it [them] to substitute our cloth for the barbaric clothes which had previously satisfied Indian simplicity. . . [and] they no longer hunted for forest animals simply for food, but in order to obtain the only things they could barter with us. (p. 296)

This is the big picture and a far cry from genetic reductionism, where the disruption of Schütz’s assumption of the reciprocity of perspectives could hardly be more complete, and the consequences of the victory of one perspective over another can hardly be overestimated. For example, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) claims its mission is to “support and conduct biomedical and behavioral research on the causes, consequences, and treatment, and prevention of alcoholism and alcohol problems” (NIAAA 2005:2). However, the Strategic Plan of the NIAAA for 2001–2005 directs the institute to pursue the following seven goals:

1. Identify genes that are involved in alcohol-associated disorders.
2. Identify mechanisms associated with the neuroadaptations at the multiple levels of analysis (molecular, cellular, neural circuits, and behavior).
3. Identify additional science-based preventive interventions (e.g., drinking during pregnancy and college-age drinking).

4. Further delineate biological mechanisms involved in the biomedical consequences associated with excessive alcohol consumption.
5. Discover new medications that will diminish craving for alcohol, reduce the likelihood of post-treatment relapse, and accelerate recovery of alcohol-damaged organs.
6. Advance knowledge of the influence of environment on the expression of genes involved in alcohol-associated behavior, including the vulnerable adolescent years and in special populations.
7. Further elucidate the relationships between alcohol and violence.

Midanik (2004) points out that this list is decisively focused on processes inside the body. Indeed, even when the list finally concerns the influence of the environment (item no. 6), that influence is directed toward “the expression of genes.” The NIAAA list also hints as to how and why sociological explanations of alcoholism began losing out to strong claimants pursuing “scientific investigations” of “basic processes” occurring inside the body.

Indeed, on the very related matter of selective funding strategies that privilege research inside the body, the paradigmatic fight over how best to explain high rates of alcoholism described in the previous section has had direct consequences on what research gets funded. In 1990 at the NIAAA, 64 percent ($n = 347$) of all research grants ($n = 539$) went to biomedical/neuroscience investigators. In 2002, the number of grants for biomedical/neuroscience research increased to 494 (Midanik 2004:221), while the total number for epidemiology was 70.

The tendency to privilege internalist approaches to the explanations of complex social behaviors reached its zenith in the shifting approach by the National Institutes of Health (NIH) to the study of violence that was revealed in the early 1990s.

BASIC PROCESSES VERSUS THE SOCIOCULTURAL EXPLANATION OF VIOLENCE: THE NIH CONTROVERSY

The following section is a partial transcript of the meeting of the National Mental Health Advisory Council on February 11, 1992. These are the unedited remarks of Frederick Goodwin, at that time the director of Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA). After these remarks, Lewis Sullivan, the Secretary of Health and Human Services, then

“demoted” Dr. Goodwin to the position of Director of the National Institute of Mental Health:

If you look, for example, at male monkeys, especially in the wild, roughly half of them survive to adulthood. The other half die by violence. That is the natural way of it for males, to knock each other off and, in fact, there are some interesting evolutionary implications of that because the same hyper-aggressive monkeys who kill each other are also hyper-sexual, so they copulate more and therefore they reproduce more to offset the fact that half of them are dying.

Now, one could say that if some of the loss of social structure in this society, and particularly within the high impact inner city areas, has removed some of the civilizing evolutionary things that we have built up and that maybe it isn't just the careless use of the word when people call certain areas of certain cities jungles, that we may have gone back to what might be more natural, without all of the social controls that we have imposed upon ourselves as a civilization over thousands of years in our own evolution. This just reminds us that, although we look at individual factors and we look at biological differences and we look at genetic differences, the loss of structure in society is probably why we are dealing with this issue and why we are seeing the doubling incidence of violence among the young over the last 20 years.

Goodwin's remarks provoked a storm of controversy that, as noted, resulted in his so-called official demotion to being *merely* director of the National Institute of Mental Health.³ But the controversy was beyond a single demotion, and it peaked in print and electronic media stories just as the first Bush administration (George H. W. Bush) was ending.

In late 1992, the Director of the NIH appointed a special panel to investigate the entire NIH portfolio on violence. I was among the more than two dozen appointees. During the first quarter of 1993, all agency heads at NIH were required to pull into a single portfolio any research funded in the recent period that dealt with violent behavior, including antisocial and aggressive behavior. Our task was to review the

³ Whether this was an actual demotion has long been contested, since a reorganization of the combined national institutes of drug administration (NIDA), alcohol (NIAAA), and mental health (NIMH) that was synthesized under the rubric of ADAMHA was in process during the previous year.

full range of studies in order to recommend where funding might best be directed to cover gaps in our knowledge about violence.

The vast majority (over 80 percent) of studies in the portfolio dealt with either the individual or smaller units of analysis (cells, neurotransmitters, genes). Yet the lack of balance in the research presented to the panel was so extreme that members from the natural sciences, psychiatry, and psychology felt the need to explain and justify this to the social scientists on the panel. The social scientists pointed out that we already know that violence (even variably defined) occurs in selected communities more than in others, and in selected social groupings more than in others. However, members of the biological sciences communicated one recurring theme—they were much more concerned with what they kept referring to as basic processes. They granted that the rest of us “non-scientists” might have a point—social, cultural, political, and economic forces might also explain varying levels of violence in a society. However, they were adamant in asserting that they were after more basic, and thus, more enduring truths about explanations of individual proclivities to violence. The biological scientists believed that if they could learn how to explain the mechanisms that control neurotransmission, then they would understand the more fundamental scientific problem. The rest could be addressed by “policy” and that was not their department, not as scientists *qua* scientists.

In the current version of what constitutes the parameters of science, any attempt to account for human behavior with a unit of analysis larger than the *individual* person is vulnerable to being called “political,” “soft,” humanistic, and not amenable to scientific investigation. In contrast, anything that coincides with the individual’s body or that is a subset of that body (biochemistry, neurophysiology, molecular genetic, cellular) is regarded as at least an amenable candidate for scientific investigation.

Yet sociologists have a particularly important role to play in reshaping and redressing the imbalance in the portfolio and, ultimately, in conceiving the nature of the problem of “violence in society.” When the unit of analysis is enlarged, there is the increasing adoption of a public health approach to studying violence that tries to take some of the conventional wis-

dom from studies of cardiovascular disease, cancer, and infectious disease: i.e., the best way to prevent mortality and morbidity is through education, community-based prevention, and intervention strategies.

The official statistics indicate that the homicide rate among African Americans in key at-risk age groups is 12 times greater than that of whites (see Michigan national study 2005). Could whatever is meant by the term *basic processes* inside the body have any chance of explaining that level of difference? Could a scientist believe that the basic processes are so different between blacks and whites without proffering a biological theory of racial differences?

Whatever the domain assumptions, the picture fits well with the earlier account of the attempt to explain the high rate of alcoholism among Native Americans, namely, that the search for alcohol dehydrogenase polymorphisms occurs inside the body. An analysis of the role of displacement from native lands begins outside the body. As crude and rudimentary as it may sound, this distinction is replicated across many fields of inquiry, from cancer research to studies of educational achievement gaps, from high crime rates to hypertension and heart disease.

One-half of all cancers are diagnosed among people living in the industrialized world, though this group constitutes only one-fifth of the world’s population (Steingraber 1997:59–60). The World Health Organization collected data on cancer rates from 70 countries and concluded that at least 80 percent of all cancer is attributable to environmental influences (Proctor 1995:54–74). Reporting problems and earlier deaths in the rest of the world may possibly explain some of these differences, but migrant studies are among the most powerfully persuasive devices that can be deployed to sharpen and isolate the environmental sources of the high incidence of cancer:

Migrants to Australia, Canada, Israel and the United States all illustrate this pattern. Consider Jewish women who migrate from North Africa, where breast cancer is rare, to Israel, a nation with a high incidence. Initially, their breast cancer risk is one-half that of their Israeli counterparts. But . . . within thirty years, African-born and Israeli born Jews show identical breast cancer rates. (Steingraber 1997:61–62)

In one of the most compelling environmental studies of cancer ever conducted, researchers found a statistically significant association between the use of agricultural chemicals and cancer mortality in 1,497 rural counties (Pickle et al. 1989).

In the United States, the rate of prostate cancer for African Americans is double that for white Americans. If we begin with these figures without any sense of history, sociology, or epidemiology, then it seems scientifically legitimate to ask, "Is 'race' as a biological concept playing a role?" Indeed, just as there are molecular geneticists searching for genes that predispose Aborigines and Native Americans to alcohol abuse by looking only inside the body, there are those looking for an answer to higher rates of prostate cancer among blacks—those searching for so-called candidate genes in this "special population."

However, given the data with which this article is introduced, a far more plausible explanation comes from an analysis of the sustained structural location of American blacks, derived from more than three and a half centuries with a predominant social location at the base of the U.S. economic structure (a higher proportion in poverty, and living closer to toxic waste sites; Bullard 1990; Sze 2004, forthcoming).

The story of four decades of research into the causes of cancer repeats with an even more dramatic challenge to sociology, a story that echoes those about hypertension and heart disease. What is at stake here is far more consequential than who gets funded. We have moved into new and challenging territory when the implications of where the explanation is located determines whether medicines will be developed for special populations versus a consideration of social interventions. To illustrate, the Food and Drug Administration (FDA) approved for the first time a drug aimed specifically at a racial group in the spring of 2005. In the rationale for the drug's development, and in the lead-up to the nature and character of the paradigmatic fight over this development, here is what the chief executive officer of that drug's manufacturing company had to say in Griffith's (2001) *Financial Times* article:

Illnesses that seem identical in terms of symptoms may actually be a group of diseases with distinct genetic pathways. This would help explain blacks'

far higher mortality rates for a host of conditions, including diabetes, cancer and stroke.

Until now, these gaps have been attributed largely to racism in the healthcare sector and widespread poverty among African Americans. (p. 16)

THE BiDil STORY AND THE MEDICALIZATION OF THE SOURCES OF HYPERTENSION

In a classical piece of epidemiological research, Klag et al. (1991) shows that, in general, the darker the skin color, the higher the rate of hypertension for American blacks. They conclude that the issue of race in relation to heart problems is not biological or genetic in *origin* but biological in *effect* due to stress-related outcomes of reduced access to valued social goods, such as employment, promotion, and housing stock. The effect was biological (e.g., hypertension) but the origin was social. But a competing perspective, now ratified by an extraordinary decision by the FDA, locates the problem primarily inside the body of African Americans. Patented and marketed to be specifically prescribed for blacks, isosorbide dinitrate/hydralazine (BiDil) is a combination drug designed to restore low or depleted nitric oxide levels to the blood to treat or prevent cases of congestive heart failure. The manufacturer originally intended the drug for the general population, and race was irrelevant. Early clinical studies revealed no compelling results, and an FDA advisory panel voted 9 to 3 against approval.

In a remarkable turn of events, however, BiDil was reborn as a racialized intervention. One of the investigators reviewed the data and found that African Americans in the original clinical trial seemed to show better outcomes than whites. Because the study was not designed to test that hypothesis, a new clinical trial would have to be approved. However, rather than setting up a study design to see whether BiDil worked better in one group than another, in March 2001 the FDA approved a full-scale clinical trial, the first prospective trial conducted exclusively in black men and women with heart failure.

In the early spring of 2005, anticipating FDA decision on approval in late spring, NitroMed (2005)—the company that developed BiDil—released a statement that was an attempt to

provide a race-specific justification for approval of the drug:

The African American community is affected at a greater rate by heart failure than that of the corresponding Caucasian population. African Americans between the ages of 45 and 64 are 2.5 times more likely to die from heart failure than Caucasians in the same age range.

The numbers are technically correct, but the age group 45 to 64 years only accounts for about 6 percent of heart failure mortality, while patients over 65 years of age constitute 93.7 percent of the mortality. Moreover, for the over 65 age group, the statistical differences in heart failure mortality between African Americans and Caucasians nearly disappear. Yet we have the FDA approving a new drug designed for African Americans, and we have a paradigmatic fight tilted dramatically to account for the sources of hypertension inside the body (see quote from *Financial Times* on page 6 of this article).

I reference that *Financial Times* quote again because it sharply identifies the nature of the contestation between where to best explain and how to intervene. Even more dramatic is this quotation from an article by Leroi (2005) summarizing the implications of DNA marker identification by race:

In one promising test run, Neil Risch's group at Stanford University showed that African Americans with hypertension have a higher probability of African ancestry for two genomic regions—6q24 and 21q21—than their nonhypertensive relatives (Zhu et al. 2005). If this result is replicated it will no longer be possible to claim that racial disparity in the rates of disease is due entirely to socioeconomic factors or even the direct effect of racism itself. (p. 3)

Leroi (2005) and others working from this perspective conclude that, if African Americans with a particular genomic region marker “have a higher probability of hypertension” than those without that marker, then this is evidence that the marker explains the hypertension. This in turn leads to a discussion of the kinds of challenges facing sociology, not just in matters of trying to explain different health outcomes for different groups, but fending off the increasing attempts to give so-called scientific authority to explanations of phenomena as wide ranging as crime and violence on

the one hand and academic achievement on the other.

PART II: WHAT IS THIS INCREASING CHALLENGE TO SOCIOLOGY?

The challenge comprises four interrelated parts: 1) the tendency to prioritize and selectively fund so-called scientific work inside the body to explain complex social behavior and health outcomes; 2) the quick emergence and proliferation of national DNA databases; 3) the destruction of or blocked access to data on the social, economic, and political aspects of health, employment status, and social stratification; 4) the attendant “molecularization of race” (Fullwiley 2005) in practical applications of human molecular genetics, from the delivery of pharmaceutical drugs to the attempt at identification of a person's race by “ancestral informative markers” in the DNA.

In 2003, the NIAAA discontinued the Alcohol and Alcohol Problems Science Database, a vital resource for social science researchers, clinicians and policy makers. This decision is part of an alarming overall strategy, the tip of an iceberg. As of January 7, 2005, the U.S. Commission on Civil Rights, by its own admission, purged 20 reports with vital social data from its Web site, such as the following 3 reports:

- Briefing on the Consequences of Government Race Data Collection on Civil Rights (May 2002);
- Native American Health Care Disparities Briefing Summary (February 2004); and
- Briefing on Tragedy Along Arizona-Mexico Border: Undocumented Immigrants Face Death in the Desert (August 2002).

Behavioral geneticists are quickly searching for genetic markers (and sometimes even coding regions) that they can associate with complex behavioral phenotypes, such as criminality, risk taking, violence, intelligence, alcoholism, manic depression, schizophrenia, and homosexuality. In the last decade, researchers have claimed links exist between DNA regions and cognitive ability in children (Chorney et al. 1998:159–66), crime (Jensen et al. 1998), violence (Caspi et al. 2002), and attention-deficit/hyperactivity disorder (Smalley et al. 2002).

New developments in population genetics now promise to explore the contributions of genetic

differences to phenotypic differences between groups. The haplotype map, for example, is designed to look at sections of the DNA to find markers with the purpose of making such differentiations. These new molecular techniques allow researchers to correlate markers for racial background with behavioral outcomes, such as violence and impulsivity. Thus, these techniques are poised to usher in a whole new era of scientific justification for theories of racial and ethnic differences in social behaviors.

Social and cultural factors always influence human genetic research, beginning with the issue of why certain behaviors are chosen for genetic analysis. During the last decade, scientific and popular literature propagated overly simplistic genetic explanations to a variety of complex social behaviors, such as sexual preference, risk-seeking behavior, shyness, alcoholism, and even homelessness. There is a history of using genetic explanations to account for and justify differences in social stratification and the behavior of those at the bottom of the economic order (Black 2003; Kevles 1985; Reilly 1991). These converging preoccupations and tangled webs interlace crime and violence with race and genetic explanations.

For decades, social scientists have documented the substantial inequalities between school districts in the United States. In recent years, the increasing retreat of the white middle classes to private schools has exacerbated these differences in many urban areas (Kozol 1991). And even a century ago, the claim has been made that intelligence quotient (IQ) differences between both individuals and groups are better explained by genetics (Kamin 1974). However, previous claims about the genetic basis of IQ differences have used mainly correlational data or twin studies and adoption studies—all relying on data outside the body, and only then making an inference about genetic differences. With new computer chip technologies linked to DNA profiling, behavioral geneticists now are able to focus on data that will permit them to better ask about patterns in the DNA.⁴

⁴ For example, Chorney et al. (1998) claimed to find a DNA marker for insulin-like growth factor 2 (IGF2R) on chromosome 6 based on an analysis of 102 students. Actually, their study explained only 5 percent of the variance.

Why should sociologists be concerned about this? First, institutions are systematically destroying more and more databases of social factors and social processes.⁵ This decreased access to social data is coupled with the simultaneous increase in DNA collection from ordinary citizens that has all the features of an inexorable technological juggernaut. The United Kingdom has been in the vanguard of these developments, but there is every indication that this will not be for long.⁶ In April 2004, the UK Parliament passed a law permitting police to retain DNA samples from anyone, arrested for any reason, including people who are not charged with a crime. Anyone can have their DNA sample taken and stored. The UK database already contains 2.8 million DNA “fingerprints” taken from identified suspects, plus another 230,000 from unidentified samples collected from crime scenes (BJHC 2005). Samples are being added at the rate of between 10,000 and 20,000 per month.⁷ The aim is to have on file a quarter of the adult population’s DNA—a figure that exceeds 10 million, making it by far the largest DNA database in the world.

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**ANCESTRAL INFORMATIVE MARKERS:
IDENTIFYING RACE FROM INSIDE THE BODY VIA
DNA**

In the last decade, researchers using molecular genetic technologies have made remarkable claims in the scientific literature, including the claim that it is possible to estimate a person’s race by looking at specific markers in the DNA (Lowe et al. 2001; Shriver et al. 1997). The social implications reach far beyond personal recreational usage, where the individual submits a DNA sample and “discovers” the percentage

⁵ In 1999 (the last year of the Bill Clinton administration) the Department of Labor published its extensive report on domestic violence against women. The National Council of Research on Women (2004) notes that the new recommissioned study on the same topic was due to be published in 2004 but is missing from the Web site of the Department of Labor.

⁶ In April 2005, the Portuguese government announced its intention to collect DNA from all of its residents (Boavida 2005).

⁷ This was before the bombings in London in early July, 2005.

of ancestry that comes from Europe, sub-Saharan Africa, or the Asian continent.⁸ Companies are touting and marketing forensic applications, the direct consequence of a successful intervention in a sensational serial rape–murder case.⁹

Tang et al. (2005), make yet another claim about the capacity to use DNA to identify race, followed by an explicit challenge to the sociologists of race who maintain that “race is only a social construct”:

Genetic cluster analysis of the microsatellite markers produced four major clusters, which showed near-perfect correspondence with the self-reported race/ethnic categories. (p. 268)

On February 4, 2005, the Stanford University public information office released the following statement (Zhang 2005) to the press:

A recent study conducted at the Stanford Medical School challenges the widely held belief that race is only a social construct and provides evidence that race has genetic implications. (p. 1)

The DNA data collection in the United States has been a fairly recent and quickly expanding venture. In 1994, the U.S. Congress passed the DNA Identification Act, authorizing the Federal Bureau of Investigation (FBI) to establish a national DNA database, the Combined DNA Index System (CODIS). Only since the mid-1980s have most states been collecting DNA samples and only from sexual offenders. But within a decade, all 50 states were contributing to CODIS with a capacity to interlink state databases and using DNA samples from a wide range of felons. At one time, the system had 9

states cross-linking approximately 100,000 offender profiles and 5,000 forensic profiles. In just three years, that number jumped to 32 states, the FBI, and the U.S. Army now linking approximately 400,000 offender profiles and 20,000 forensic profiles. States are now uploading an average of 3,000 offender profiles every month (Gavel 2000). Although searching within such a large pool of profiles may seem daunting, computer technology is increasingly efficient and extraordinarily fast. It takes less than a second—about 500 microseconds—to search a database of 100,000 profiles.

The further expansion of the databases is inevitable. The U.S. House of Representatives passed a bill (H.R. 3214 “Advancing Justice Through DNA Technology Act of 2003”) that will expand the original CODIS to include persons merely indicted and not necessarily convicted. In 2004, California voters passed Proposition 69 that permits collection and storing of DNA for those *merely arrested* for certain crimes by 2008, thereby joining four other states collecting DNA on the same premise. The Violence Against Women Act of 2005 contains the following provision that DNA samples can be obtained from people merely detained under federal authority:

Sec. 1004. Authorization to Conduct DNA Sample Collection from Persons Arrested or Detained under Federal Authority.

(a) In General- Section 3 of the DNA Analysis Backlog Elimination Act of 2000 (42 U.S.C. 14135a) is amended—(1) in subsection (a)

(A) in paragraph (1), by striking The Director’ and inserting the following:

(A) The Attorney General may, as prescribed by the Attorney General in regulation, collect DNA samples from individuals who are *arrested or detained* under. (italics added)

As governments increase the number of profiles in the databases, researchers will increase proposals to provide DNA profiles of specific offender populations. Twenty states authorize the use of databanks for research on forensic techniques (Kimmelman 2000).

The emerging challenge to social theory will be substantial, precisely because the imprimatur of scientific authority tilts to so-called basic processes or to a parallel notion that locates the explanatory power to data collected inside the body. Of course one position is that collecting these data is valuable in that researchers can then

⁸ Many Web sites, such as AncestrybyDNA.com, provide information so that a person can apply for a kit to submit his or her DNA sample for the company to analyze and report the estimated proportion of a person’s ancestry that is purportedly from one of several large continental groupings.

⁹ In 2003, police in Baton Rouge, LA, were unsuccessful identifying a serial rapist-murderer, after interviewing over 1,000 white males who fit what one witness described as the likely suspect. A DNA sample was tested and analyzed by a company claiming it could discern that the suspect (based on DNA analysis) was 85 percent African ancestry (Touchette 2003). The prime suspect was apprehended and identified to be African American. Since then, the DNA testing company advertises its success on the Web and markets its expertise to police departments nationally.

assess empirically the relative explanatory power of competing explanations. The problem with this position is the role of the supercomputer in the generation of seductive but meaningless correlations to DNA markers. Although this matter would seem to be highly technical, it can be explained quite simply: Each human has 3 billion base pairs of DNA. Any two humans across the globe share 99.9 percent, or complete duplication, of their DNA sequences. However, that remaining 0.1 percent difference means that there are at least *3 million points of difference* between any two people, or any two groups of people. Current supercomputer technology can therefore find differences between *any* two groups of persons, whether or not those differences have any bearing on the manner of gene expression. A supercomputer can be programmed to find differences in the DNA sequences between any two arbitrarily and randomly selected groups of people. I have used the example of dividing an audience at a lecture into two groups, A and B, just by drawing an arbitrary line down the center of the audience. That would be trivial research that has little credibility and less chance of funding. However, if those two groups happen to coincide with socially significant categories (e.g., race, ethnicity, social class, or caste position), the demonstrated differences would feed easily into a competing explanation of the manifest differences between groups that necessarily resonate in (that) society.

Thus, the problems that need to be addressed are as follows:

1. Increasing pressure for national DNA databases;
2. Destruction of more and more databases about social categories;
3. A research agenda, waiting in the wings, to do single nucleotide polymorphisms (SNP) profiling;
4. Ever expanding and racially marked DNA databases, and the inevitable search for competing explanations of human behavior.

PART III: WHAT SOCIOLOGISTS CAN DO TO MEET THE COMING AND GROWING CHALLENGE

Sociologists can stand on the sidelines, watch the parade of reductionist science as it goes by, and point out that it is all “socially constructed.” That will not be good enough to rain on this parade, because of the imprimatur of legitima-

cy increasingly afforded to the study of so-called basic processes inside the body. What can and should the discipline do?

SOCIOLOGICAL RESEARCH AND SOCIOLOGICAL WORK AT THE SITE OF “RATE CONSTRUCTION”

While this argument is indeed about social construction, sociologists need to spend more time showing how the rates got constructed.¹⁰ How analysts theorize about social life has direct consequences. The sharply different approaches to the study of deviance, law, and the criminal justice system best illustrate these consequences. In the middle of the twentieth century, two competing schools of thought dominated research and theory in this area. Columbia University represented one orientation, where Robert Merton ([1949] 1990) and his students examined the relationship between the worlds of deviants and normals through an empirical strategy that relied heavily upon official statistics reported by police departments. Researchers assumed the collected FBI’s Uniform Crime Reports accurately reflected deviant and criminal behavior. Those working in this tradition occasionally engaged in field site research, but the dominant tendency presumed there was not a large gap between official crime statistics and that of the phenomenal world of action, and that theorizing from these databases warranted little caution or concern.

The University of Chicago, which had a long and strong tradition of what they called “natural setting” research, represents the competing orientation. Unlike Columbia, the Chicago researchers were committed to close observation of the so-called hobo, gang, or prostitute. They spent years in what might now be described as an embedded strategy of data collection. Their practitioners literally went to those spaces that any common sense actor perceived to be the setting for deviance. According to the folklore, one of the most celebrated sociologists of the era got “caught with his pants down” in an up-close ethnography of prostitution; the university administration and the *Chicago Tribune* demanded that he be fired. This tale is a more colorful illustration of Chicago researchers’

¹⁰ This segment is based on a short article previously published in *Social Problems* (Duster 2001).

commitment to studying deviance in its natural setting. Still, researchers did not conduct their field work on white collar crime or in corporate settings. The accepted domain assumptions were to simply document the behaviors and practices of those already located in the existing categories.

In short, Chicago researchers and Columbia researchers approached the study of deviance in significantly different but fundamentally important ways. However, both schools conducted their work in a “taken-for-granted” empirical world.

Within this context, a third set of players challenged the epistemology of the whole playing field and ultimately shifted the focus of theory and research. Aaron Cicourel (1967) and Egon Bittner (1967) persuaded the police to let them ride with them on their routine rounds, permitting them to observe the wide discretion police used in their arrest procedures. Meanwhile, David Sudnow (1965) observed the actual processes of the Public Defender’s office and recorded the ways prosecuting attorneys worked together to selectively secure guilty pleas from some individuals, while other individuals were able to bargain for better deals. Erving Goffman (1959) penetrated mental hospital wards and studied intake decision-making that blazed a trail for the next generation of mental health researchers. Yet deviance was merely the vehicle for obtaining a better understanding about how social institutions and organizations construct rates (and order). For example, Irving Zola (1966) sat in medical clinics, observing doctor-patient communication, the subject of his now classical study of how Jewish, Italian, and Irish patients present very different symptoms for the same physical condition, shaping how medical doctors interpret, diagnose, and categorize (rate construction). This had obvious implications for how theorizing from “raw rates” could be completely distorted. Knowing that the Irish tend to be more stoic and the Italians more expressive in reporting the same symptoms has profound implications for developing a theory of ethnic differences in health and illness.

These researchers engaged in a methodology that seemed to parallel or complement the Chicago School, that is, field work in the natural setting. Yet the basic assumptions were very different, since Chicago researchers were

trying to find out more about deviants’ true characteristics. This newer approach began during the first decade of the new journal *Social Problems* and raised a very challenging question: “What are the social processes that account for why some get classified in a category and others do not, *even though both are engaged in the same or similar behavior?*”

When Kitsuse and Cicourel (1963) tried to publish their classic article on the uses and misuses of official statistics in social science, each major sociology journal (the *American Sociological Review*, the *American Journal of Sociology*, and *Social Forces*) rejected it—some reviewers explicitly argued that this was an attack on the citadel. Reviewers aligned with both traditions (Columbia and Chicago) worried that “if this were true (that official statistics grossly misrepresent social reality), we would have to go back to the drawing board and re-orient theory and research.”¹¹ Howard Becker had just taken over the editorship of *Social Problems*, the breakaway journal of the *Society for the Study of Social Problems*. A different set of reviewers with a sharply different perspective urged publication. In the next few years, several published articles effectively challenged and substantially replaced earlier schools. The 1960s exploded with more competing paradigms, from conflict theory to ethnomethodology to Marxist theory. Each had its own approach to the study of deviance and normality. But it was the professional skepticism regarding automatically accepting official statistics that had the most profound impact upon the developing epistemological crisis of the field.

THE IMPORTANCE OF DATA COLLECTION AT THE SITE OF KNOWLEDGE PRODUCTION

There are powerful organizational motives for police departments to demonstrate effectiveness in “solving crimes.” It is a considerable embarrassment for a police department to have

¹¹ Kitsuse (1962) would also argue that the “social reaction” approach to deviance requires that the investigator go out into the field and study the social responses to deviance in its natural setting. So, while this approach affirms the “natural setting” methodology of the Chicago School, it asks the investigator to look at the social patterns in the discretions and strategies of sorting, naming, and classifying.

a long list of crimes on their books, for which no arrest has been made. No police chief wishes to face a city council with this problem. Thus, there are organizational imperatives for police departments to clean up the books by a procedure known as “cleared by arrest.”

Few matters count as much as this one when it comes to reporting police activities to the public (Skolnick 2002; Skolnick and Fyfe 1993). To understand how arrest rates are influenced by this “cleared by arrest” procedure, it is vital to empirically ground this procedure by close observation.

Here is the pattern: Someone (P) is arrested and charged with committing a crime (x), such as burglary for example. There are several other burglaries in this police precinct. The arresting officers see a pattern to these burglaries and decide that the suspect is likely to have committed several on their unsolved burglary list. Thus, it sometimes happens that when P is arrested for just one of those burglaries, the police can clear by arrest the 15–20 other burglaries with that single arrest. This can show up as a repeat offender in the statistics, though there may never be any follow-up empirical research to verify or corroborate that the police arrest record (rap sheet) accurately represents the burglaries now attributed to P.

But researchers can corroborate this activity as a pattern only by riding around in police cars or doing the equivalent close up observation of police work (Jackall 2005). And yet, if social theorists take the FBI Uniform Crime Reports as a reflection of the crime rate, with no observations as to how those rates were constructed, they will make the predictable “policy error” of assuming that there are only a small number of people who commit a large number of crimes. The resulting error in theorizing would be to then look for the kind of person who repeatedly engages in this behavior (as if it were not “cleared by arrest” that generated the long rap sheet). It is a very small step to search for explanations inside the body. In an earlier section, I mention the use of ancestral informative markers to attempt to identify a person’s race. The U.S. prison population has undergone a dramatic shift in its racial composition in the last 30 years. The convergence of this social trend, along with the burgeoning redefinition of race as something determined by DNA patterns, will be a challenge to sociology at many levels, from

the attempted reinscription of race as a biological or genetic category, to attempted explanation of a host of complex social behaviors. That challenge can only be met by doing what the social researchers of a previous generation did with police work, namely, going to the very site at which those data are generated.

To meet this challenge, social scientists will have to do the kind of research that documents how these categories are constructed. We need to treat so-called ancestral informative markers as the subject of close inquiry and observation. That means, rather than accepting or rejecting axiomatically, we need to penetrate the logic of this kind of work and determine just how subjects are sorted into categories that claim the DNA belongs to someone with “85 percent” African ancestry.¹²

In sum, if social construction is to be more than a comfortable shibboleth easily received by those who already accept its premises, it must be buttressed by investigations at key empirical sites that show the social forces at play in the construction. Otherwise, sociologists will be left watching the parade from the sidewalk, asserting to a resonant audience of like-minded social scientists that it is all “socially constructed.” Meanwhile, incarceration rates continue to soar, DNA databases fill to the brim, and competing explanations have greater resona-

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¹² One important model is that of Fullwiley (2005), an anthropologist who enters the laboratories of these researchers to see how they constitute the “ancestral informative markers.”

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