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Thematic Section

DNA Typing: A technology of fear

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ABSTRACT *The expansion of DNA databases in the United States, Europe and a few other countries to include not just convicted felons but arrestees, who might be innocent, raises a number of civil rights concerns. Sujatha Byravan explores how the use of DNA typing in forensics and immigration, given the current climate of fear, in the quest for a safer world, could legitimize discrimination and give rise to a new apartheid.*

KEYWORDS *criminal justice; DNA database; immigration; race; discrimination; genetic surveillance*

Introduction

In the 1970s and 1980s, people typically imagined a terrorist as someone with a long beard, probably an imam or other devout Muslim, who looked distinctive because he (the image was typically that of a man) was associated with that unspecified region known as the 'Middle East'. Despite Timothy McVeigh, who bombed the Alfred P. Murray building in Oklahoma City in 1995, this image did not undergo major revisions until the events of 11 September 2001 in the United States. That single, violent exposure to how far some people would go to systematically destroy civilian targets has completely altered how the West in general perceives terror, visualizes its perpetrators and seeks security. The new profile of a terrorist is that of a clean-shaven young male who may have spent many years in the West and was probably born in the very country he bombed. This has led to the redrawing in people's minds of what a terrorist looks like and has further led to a sense that people are justified in their increased fear and anxiety. Thus, while the mental image continues to often be that of a person who is Muslim, presumably of Arab ethnicity, he may be harder to identify. In this climate of fear, people have become more open to accepting limitations on their civil liberties if that might keep them safe.

While personal prejudice about ethnicity is by no means remarkable, it is the systematic use of technology to exacerbate racist ideology that merits further discussion. Scientific logic has indeed been long used as the rationale for a range of unscrupulous, and even racist, social practices throughout the world. Consider, for instance, eugenic science in the early 20th century; mustard gas experiments on military personnel by the US, Canada, Australia and Britain during the Second World War and the treatment of children of Sephardic Jews in Israel in the name of curing roundworm infection. This

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paper explores how, in the early 21st century, the use of DNA in forensic databases is being used to recalibrate fear and legitimate existing discriminatory practices.

DNA databases, race and the criminal justice system

Today, almost every industrialized nation collects DNA information from convicted offenders, presumably to compare DNA from a crime scene with data in forensic databases. DNA evidence has been used to release many wrongly convicted persons from prisons. As the number of such cases increases and they receive greater media attention, this practice has contributed to a growing interest in widening the net for obtaining DNA samples to include not only felons, but also arrestees, and perhaps even the entire population. The UK was the first country to introduce such a policy with the National DNA Database in 1995 and currently houses the largest such information bank in the world. It contains the DNA records of 2.5 million people, including arrestees accused of committing violent crimes and minor offences, as well as those who have not been convicted of any crime. In the US, the FBI has set up a similar DNA database, the Combined DNA Index System (CODIS), which enables local, state and national authorities to share DNA profiles electronically. Such practices raise a number of concerns about civil rights and liberties, including the fact that arrestees include the innocent whose DNA is collected and retained even after a case is solved, thus undermining the principle of presumption of innocence. Further, such DNA collection and retention lacks privacy safeguards, and exacerbates existing racial inequalities in the criminal justice system.

On 5 January 2006, with little media coverage or public discussion, President Bush signed into law the DNA Fingerprint Act of 2005, which allows for the collection and retention of DNA from individuals who are merely arrested, that is, under suspicion prior to trial or conviction, or from non-US persons who are detained under federal authorities. The Act also allows states to upload DNA profiles to CODIS. This clause eliminates previous barriers to loading DNA profiles from arrestees who have not been charged and from samples that are voluntarily submitted. Finally, the law allows expungement of the DNA from CODIS of an arrested individual only following dismissal or acquittal of criminal charges.

In the US, systematic racial disparities run through every stage of the criminal justice system. They affect who is detained, arrested and convicted, and the kind of punishment that is meted out. About 60 years ago, 22 per cent of the prison population was black and 77 per cent was white (Hacker, 2003), but as of December 2004, according to the Bureau of Justice, 41 per cent were black, 34 per cent white, 19 per cent Hispanic and the rest belonged to 'other' races. Incarceration rates in the US climbed in the 1990s and reached historic highs in recent years. According to Bruce Western (Western, 2006), 'Arrests of black men climbed steeply during the crack epidemic of the 1980s, but since then the political shift toward harsher punishments, more than any trends in crime, has accounted for the continued growth in the prison population' (as cited in Eckholm, 2006). In such a biased system, the DNA of people of colour – who are stopped, searched, tried, convicted and penalized more often – would obviously be over-represented in the expanding forensic DNA databanks, and would intensify existing racial inequality (Duster, 2004). It is worth noting that the DNA database in the UK contains information on 32 per cent of adult black men in the country and of 8 per cent of adult white men (Gosline, 2005). Some people have advocated a universal DNA database (Kaye and Smith, 2004), one in which everyone's DNA is included, to solve the racial bias inherent in the gathering of DNA information. But when the bias is in the way crime is defined and justice is sought and applied, only the DNA of those that the criminal justice system focuses on will repeatedly be matched. This will not solve the problem of racial bias, and will undoubtedly raise a number of concerns relating to civil liberties.

As the number of samples in DNA databases increases, scientists have proposed to provide more detailed DNA profiles of criminal populations. Research into the genetic reasons for criminal behaviour has repeatedly been proven to

be false, but many states in the US continue to allow DNA databases to be used for biomedical research.

Practically everyone who has examined the evidence agrees that the notion of race has no scientific validity, although it is possible to perceive differences in the frequency of DNA markers between various population groups (http://raceandgenomics.ssrc.org/) (Cooper *et al.*, 2003). Yet scientific articles continue to proliferate in forensic and scientific literature on the use of DNA markers to identify ethnic or racial groups (Devlin and Risch, 1992) and suggest that there is a correlation between the frequency of a certain genetic marker in specific populations and the likelihood of profiling by the police.

What makes the situation even more ominous is that these changes in policies on forensic DNA databases are taking place while the United States Congress is in the midst of a contentious debate on drafting new federal legislation to restrict illegal immigration. The vast majority of current illegal immigrants to the US are believed to be from Central America. Various ideas for keeping these illegals out are being discussed, from building a wall between the US and Mexico to sending those who are already home. Biometric scans of the retina have already been added to fingerprints in granting visas in the US, the European Union and other countries. This suggests that a new typology or racial profile is being developed, which will surely be used for new forms of policing in the future.

Potential wrong directions

What kinds of changes could one envision in this post-9/11 world in which DNA technology could be used to make people feel safe? Which communities and groups of people would be affected by such changes? And how far are we all willing to go to allay people's fears and whose freedoms, civil rights and liberties would governments be willing to sacrifice?

Currently, only six states in the US have provisions to include the DNA from those arrested or indicted, but not convicted, in forensic databases. However, the DNA Fingerprint Act serves as a green light for all states across the US to introduce legislation that permits similar changes in state policies. A recent article in *Science* magazine argues for collecting DNA information, which would not only identify and implicate the perpetrator of a crime, but would allow law enforcement agencies to identify family members of the accused but not convicted (Bieber *et al.*, 2006). According to the authors, 'genetic surveillance would thus shift from the individual to the family'. If such a policy were adopted, even the relatives of those who are only arrested or charged, but not convicted, would have their DNA become part of the database.

The control of immigration is another potential application of this technology. In order to track illegal immigrants, governments could justify collecting the DNA of individuals profiled as 'immigrants' in wide sweeps in the interest of securing the borders. Officials could then keep track of their travel details, and from that, perhaps even glean their tendency for terrorist activities. Since the 1970s, an increasing majority of legal immigrants coming into industrialized nations are from less-developed countries in Asia, the Caribbean, Africa, Eastern Europe, and from Mexico. One could envision that the DNA of immigrants, who are mostly people of colour and are from poorer countries, would make its way into DNA databases in the West. Further, since scientists are working to identify so-called racial genes (Risch *et al*, 2002), we might be ready to create a racially sub-divided immigrant DNA database. One could also envision law enforcement agencies turning to DNA technology to identify 'homegrown' terrorists, especially since they need no longer have distinguishable 'Middle Eastern' features. For instance, it may be considered politically expedient to collect the DNA of Arabs or Muslims to make the dominant white constituency in European and North American countries feel safer.

Changes in the criminal justice system are occurring at a time when medicine, too, is becoming re-racialized. Besides well-documented eugenic practices, the access to healthcare for people of colour has been of concern for many years. But genetics is already performing a new

're-racialization'. Some geneticists are claiming that groups of people belonging to a specific 'race' can be treated with race-appropriate medicine. BiDil was the first drug to be approved, in June 2005, for use in African Americans with heart disease (Sankar and Kahn, 2005) and a number of other such 'racial' drugs are in the pipeline.

The resurgence of race in medicine, the expansion of DNA databases, and new policies in immigration; each by itself may seem logical to some. Police can perhaps solve more cases with DNA from arrestees, doctors can perhaps treat people better if they knew their dominant continent of origin, and the West might feel safer if their governments were to surgically target illegal immigrants and Muslims. But it is the convergence of DNA technologies with policy in all these areas and more, and the potential for serious abuse of our rights, given the direction in which we are headed, that is very troubling.

The policy changes described above, engendered by technological capacity in sequencing of the human genome, are now being applied vigorously in a post-9/11 world. In such a world, despite its limitations, DNA's supposed ability to serve as the repository of a person's identity will likely be exploited. Many social problems are increasingly being framed in the context of global and national security wherein people of colour, other minorities, and those who look and behave 'differently' are the outsiders. And governments might feel justified in using the latest technological tools at hand, including genetic tools, to identify and exploit these perceived and real differences to keep tabs on 'outsiders', keep them in prison so the rest are secure, keep them out of the country, or, in a well-meaning way, treat them for their diseases. Those who are identified with a propensity for crime may also be identified with a predisposition for heart disease. Simply put, the 'clash of civilizations' is perhaps not one between civilizations in different parts of the world, but between peoples who are white and those who are not. It is between those who are in power and those who are not, those who have access and those who do not, those who are in and those who are out.

Conclusion

Using biology to explain the social order is hardly a new phenomenon. In this post-genomic era, DNA technology can relatively easily be used and the information, aided by advances in computer technology, stored and retrieved. Indeed, the New York Police Department used a portable device to this end in early 2000 in a pilot DNA database project. A swab from the lining of the mouth of an arrestee was placed on a credit-card-sized chip and then scanned through a hand-held machine, the size of a compact disc player (Duster, 2003).

The response from many natural scientists regarding recent policy changes has been to point out that racial medicine is flawed science and that there is no continent-wide and continent-specific genetic marker. Even though people across the world differ in their appearances in many ways, most genetic variations in humans do not cluster on the basis of 'race'. Variations based on genetics do not match distinctions related to body shape, culture or language. In fact, there is no agreement on what 'race' is or how many races there are. Interestingly, the number of races said to exist by scientists and anthropologists has varied over the years from three to 30 (Lewontin, 2005). The notion of race is a social, rather than a biological, construct.

Many social scientists, in their responses, have reminded us of the unfortunate history of eugenics and of the problems with using DNA to explain human behaviour. While intelligence, sexual orientation, shyness, criminality and a wide range of other behaviours are claimed by some scientists to be coded in our genes, the term 'gene' in fact does not have a clear unequivocal meaning (Pearson, 2006).

As new genetic technologies are sought to keep the world safe, it will require an acute vigilance to be sure that while we attempt to create a safe place for some people, we do not end up with new kinds of discrimination and apartheid for others.

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