The New DNA Paradigm

Author: Josephine Livingstone
Date: 2019
From: Gale Opposing Viewpoints Online Collection
Publisher: Gale, a Cengage Company
Document Type: Viewpoint essay
Length: 1,554 words
Content Level: (Level 4)
Lexile Measure: 1280L

Full Text:

Article Commentary

"Now that so much of our genetic information is stored in databases, linking us all to each other, it turns out that DNA technology is not a neutral arbiter of truth."

Josephine Livingstone is a culture writer at the *New Republic*. In the following viewpoint, Livingstone argues that the popularity of direct-to-consumer genetic testing has led to questionable uses of genetic data. Genetic testing companies, the author maintains, have created privacy concerns by granting law enforcement access to their data and selling consumer data to other companies for research purposes. Additionally, Livingstone contends, the widespread use of consumer genetic tests has reinvigorated public discourse that promotes nineteenth-century ideas about race and genetics that have been thoroughly debunked. Livingstone expresses concern that changes in the way society views genetics will negatively impact people's rights.

As you read, consider the following questions:

1. According to Livingstone, who was Henrietta Lacks, and how are her experiences related to the practices of genetic testing companies in the twenty-first century?
2. Do you agree with the author's suggestion that senator Elizabeth Warren's (D–MA) comments on her own genetic test reinforced an outdated settler-colonial worldview? Why or why not?
3. In your opinion, what organizations, if any, should be allowed to access information stored in a consumer genetic database? Explain your answer.

Big cultural changes happen slowly, then all at once. This summer, the Golden State Killer, a serial rapist and murderer, was identified through the search of a third-party consumer genomics service called GEDmatch, which turned up one of his distant relatives. The hit was no fluke: Science reports that the commercialization of genomics has grown so much that around 60 percent of Americans with European heritage could be linked to a relative through the databases of companies like 23andMe. On Monday this trend entered the political sphere, with Senator Elizabeth Warren announcing, in refutation of President Donald Trump's skepticism, that her DNA shows "strong evidence" of Native American ancestry some six to ten generations ago.

These different but related news items tell the story of DNA science's trajectory from the academic peer-reviewed realm, to the hands of law enforcement, to the broader culture of at-home genetic testing. For years, DNA has largely been considered part of an invisible, mysterious realm that experts can dip into as needed: to identify criminals, to screen for disease. But that paradigm is giving way to a new one. Now that so much of our genetic information is stored in databases, linking us all to each other, it turns out that DNA technology is not a neutral arbiter of truth. Rather, it exerts its own influence and can be used to enhance the power imbalances that exist in this country.

Since the first American was convicted using DNA evidence—Tommie Lee Andrews, for rape, in Florida, 1987—nearly 400,000 cases have concluded the same way, according to the FBI. Sixteen million Americans have their DNA stored in a law enforcement database. Meanwhile, 15 million people around the world have had their DNA analyzed by a direct-to-consumer (DTC) genetics company like MyHeritage or 23andMe. The way law enforcement authorities and 23andMe process DNA is different (the police only do routine tests, enough to match two samples, while DTC companies use a process called genotyping to define which genetic variants a person possesses). But these two worlds are starting to merge. In 2015, a 23andMe transparency report revealed that law enforcement agencies had requested access to the company's genetic database, but had been denied. And with the capture of the Golden State Killer, the overlap between law enforcement's priorities and the "fun" commercial aspect of genetic testing has become clear.

This is cause for concern not just because it represents a potentially vast infringement of privacy; it also could reinforce existing biases within the law enforcement system, whose use of genetic data is skewed. A 2011 study in PLOS Medicine showed that "[f]orensic DNA databases are growing to mirror racial disparities in arrest practices and incarceration rates" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3186804/). As prison populations have grown, they have been accompanied by a "dramatic shift" in their racial proportions, as African Americans and Latinos have been disproportionately targeted by drug-focused policing. So, the authors observed, it follows that law enforcements' DNA databases mirror those unequal incarceration rates.

Now that police can use open-access genetic databases, they could potentially introduce racial bias to information that originated with unwitting consumers. A person can upload their results to a third-party service like GEDmatch, where it can lead police to their relatives. These are public concerns, and the answers are clouded by the sheer vastness of the numbers and the secrecy around law enforcement's process for sifting through them.

Then there are the ethical problems already at play in the DTC companies' work. This July, 23andMe sold its consumers' data for $300 million to GlaxoSmithKline, for the purposes of medical research. On the scientific level, this makes sense: You need a huge corpus in order to study genes across the population. But for many, the case recalled the story of Henrietta Lacks, whose own DNA was used in research without her consent. In 1951 her tissue was removed without her knowledge, and used to create an extremely profitable medical industry. She died, and her husband and five children were left in poverty, never seeing any of the benefits that Lacks's cells brought to others.

The other important connection between race and the DTC DNA testing kits is more subtle and psychological. There are many African American users who test themselves to connect to their history. 23andMe has encouraged them to do so, via their "African American Sequencing Project." Slavery and imperialism has severed countless African Americans from their deeper origins, and there has been a therapeutic benefit to many from the material proof of their family's existence. In 2016 Cara Rose DeFabio wrote an insightful piece about black 23andMe users confronted by painful truths lying hidden in their own genes (https://splinternews.com/if-you-re-black-dna-ancestry-results-can-reveal-an-awk-1793862284).

The irony of black users' data being used for medical research, then, is painful. That breaches in security have led to their genetic data becoming accessible to police via third-party services is more painful still.

The intersection between race and medical technology, especially genomics, lies behind the scandal of Elizabeth Warren's own genetic disclosure. In asserting that she has Native American "blood," she implies—although she explicitly claims otherwise in the promotional video—that Native identity has anything to do with DNA. In fact, it doesn't. Tribes are free to determine membership as they choose, but none uses DNA testing as a membership standard. As Professor Kim TallBear of IndigenousSTS put it in a statement released on Twitter, Warren "focuses on and actually privileges DNA company definitions in this debate, which are ultimately settler-colonial definitions of who is Indigenous." In other words, Warren "proving" that she is Native with her DNA undermines the real practices of Indigenous people and imposes an oppressive standard upon them.

Warren has effectively bought into a definition of Indigenousness that Trump established when he challenged her to prove her Native identity. Ironically, she has reinforced a medical model of ethnic "purity" reminiscent of eugenics. Many people have lamented the way that the Warren debacle has plunged our discourse on race back into the laboratory.

In the medieval and early modern periods in Europe, explanations for the difference between people's skin color tended to rely on either the Bible or simplistic environmental theories, like the idea that the sun burns people black. But in the 19th century European thinkers turned their attention to new models of race taxonomy. Scientists in the burgeoning field of anthropology measured skulls, weighed brains, and performed other kinds of physical measurements to "study" nonwhite people. These practices were always implicitly colonialist, because they posited whiteness as a norm, and became explicitly so in the colonial context. And of course "scientific racism" of this kind would be appropriated by the Nazis in the 20th century (even though many Victorian thinkers believed Jewish people to be superior), which is symptomatic of the extreme political pliability of the "medical" model of differentiating race.

This is where the early history of "race science" loops back around to our present moment. Trump has shot back at Warren, saying that he will only trust a DNA test that he personally administers. Just as in the colonial era, every test can be ruled as definitive or bunkum by whoever has the most power. There turns out to be no single "truth" about the information in Warren's genome: just a process of deferral to the person who can speak the loudest.

Genomic science has saved countless lives, and given us miraculous insight into matters of the human body. But there is no neutral knowledge; it always has to exist in a flawed world. Now that genomics has become ubiquitous, it has taken on a very powerful politics. It has already become the territory of commerce; of law enforcement; of electioneering; of the biggest, oldest problems around race and identity in the United States. So much information on so many people is now stored in databases that we have reached a tipping point: Do we have control over DNA data, or does it have control over us? Our world is increasingly ruled by those who control such information. Our bodies are our own, but the data is not.

Source Citation (MLA 8th Edition)
Livingstone, Josephine. "The New DNA Paradigm." *Gale Opposing Viewpoints Online Collection*, Gale, 2020. *Gale In Context: Opposing Viewpoints*, https://link-gale-com.ezproxy.grossmont.edu/apps/doc/DJQUBC339572494/OVIC?u=sdccd_grossmont&sid=OVIC&xid=b36bdc99. Accessed 19 Apr. 2020. Originally published as "The New DNA Paradigm," *The New Republic*, 16 Oct. 2018.
Gale Document Number: GALE|DJQUBC339572494