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The Family Business:
DNA Ancestry Tests and White Identity

A Thesis by
Callan Keeter

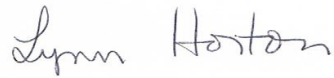
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The Family Business:

DNA Ancestry Tests and White Identity

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ABSTRACT

The Family Business:

DNA Ancestry Tests and White Identity

by Callan Keeter

DNA ancestry tests have emerged in the past two decades as an exponentially growing industry, and advertisements for these products in recent years have permeated households throughout the global West. This research explores the history of nation and race as human social categories and how these concepts relate to modern studies on the consumers of DNA ancestry tests and participants in the hobby of genealogy. Using both quantitative and qualitative content analysis on key pages from the websites of top DNA ancestry testing companies, this research identifies examples of advertising where historical oppression is ignored in favor of highlighting pseudoscientific ideas about identity and enforcing a female gender role as caretaker of both family genetics and cultural traditions. Findings on how DNA ancestry tests are already interpreted by consumers note that white nationalist groups already favor them for promoting claims about the genetic reality of racial categorizations and the existence of genetic purity. The implications of this research are useful in understanding what messages about identity consumers have absorbed from interaction with DNA ancestry companies already, and what future target audiences including children may learn through company advertising.

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1 Introduction

The past two decades of human history have been characterized by technological advancements in communication. Additionally, the political institution that is the nation faces mounting challenges from a variety of angles. The rate of immigration has increased steadily in the past few decades,¹ and with more people active on the internet,² daily transnational communication also works to weaken the divide between people of different nations. The perception of fluid borders between nations resulting from their regular transgression both physically and digitally coincides with emerging public consciousness of fluid divisions between races, genders, or sexualities. All of these coalescing fluidities can work to undo the stability of personally valued identities and the institutions of privilege and oppression that depend upon these identities. In reaction to these shifting divisions, white people can experience the impulse to locate a source of identity that resists change, while remaining on the forefront of social movements and technological revolution.

Here enters the DNA ancestry test. Since the year 2000, the use of this technology has transformed thanks to its so-called “democratization” when it gained popularity in the direct-to-consumer market. The total number of consumer profiles across leading DNA ancestry testing companies reached over 26.5 million in 2019, up from just around 1.5 million only 4 years ago in

1. Emily F. Wood and Monica K. Miller, “Prejudice toward immigrants in student and community samples,” *Journal of Aggression, Conflict and Peace Research* 8, no. 4 (2016): 290.

2. Jacob Poushter, “Smartphone ownership and internet usage continues to climb in emerging economies,” *Pew Research Center* 22, no. 1 (2016): 4.

2015.³ The rise in users could be because DNA is the unchanging and science-backed source for identity that consumers want now more than ever, but it is also simply a much more affordable and accessible form of education and entertainment. At the beginning of the decade, DNA ancestry tests were available for between \$250 and \$2,500 USD,⁴ though now tests picked up from drugstores are offered at sale prices under \$10 USD.⁵ Genealogy companies that developed or acquired DNA ancestry testing capabilities in the last twenty years have also worked to make the entire hobby of genealogy more easily understood with digitized records and bigger userbases. There's a positive feedback loop in play for this industry, the more consumers you have, the more valuable your product is to both existing and future consumers. The information a DNA ancestry test company sells can represent a relationship to not only other individual humans, but also a place within the context of human history.

The DNA ancestry test consists of a kit for collecting a cheek swab, an account with a company website, and a unique set of lab-tested results that tell the user what parts of their DNA resemble the DNA sampled from people around the world. Users may view their DNA matches through a list of percentages and their corresponding region. The region might be a continent, a group of several nation-states, a single nation-state, or a small nation within the borders of a nation-state depending on the company and that company's reference panel of DNA samples. The reference panel is composed of DNA belonging to modern humans, but who have lived in the same

3. Antonio Regalado, "More than 26 million people have taken an at-home ancestry test," MIT Technology Review, last modified February 11, 2019, <https://www.technologyreview.com/2019/02/11/103446/more-than-26-million-people-have-taken-an-at-home-ancestry-test>.

4. Gísli Pálsson, "Decode Me! Anthropology and Personal Genomics," *Current Anthropology* 53, no. 5 (April 2012): 185.

5. Regalado, "More than 26 million people have taken an at-home ancestry test," 2019.

places as their ancestors for many generations. After seeing the common DNA between the consumer and various ancestral populations, they can connect with family members who have profiles on the company site and reference the company's digital genealogical records archive. Each company makes its own claims about the value of knowing your own DNA in relation to regional ancestors, for example: "the more you learn about your past, the more you'll learn about who you are."⁶ This research examines how the top DNA ancestry test companies incorporate constructs of white identity into their marketing material. The chapters to follow will outline theories national and racial identities as well as the historical processes that precipitated the invention of DNA ancestry tests. After a look at the literature of DNA ancestry tests, I present the method of content analysis conducted on the websites for major DNA test companies and the patterns that emerge in that analysis.

6. "DNA Heritage," Ancestry, accessed March 2, 2020, <https://www.ancestry.com/dna/lp/dna-heritage>.

2 Review of Literature

There are many concepts large and small that go into an understanding of both the history of identity formation as well as the history of research on the DNA ancestry test. This review will start at the largest scale, dealing with definitions of nation and race, before focusing in on a historical perspective on the ways in which changes in race categories and race science set a precedent for modern explorations of identity through genealogy, and conclude with the contemporary research that handles testing and its outcomes directly. These recent studies will inform the theories used to perform this research's own analysis.

2.1 Nation and Race

Understanding the concepts of nation and race, as well as the concepts that challenge their relevance like migrant identity can all provide a lens to understand the language that DNA ancestry tests have access to today. These concepts are the essential elements of any discussion of genealogy. When one person asks the other, “where are you from?” it’s a question interrogating both the land upon which an individual was born and/or raised, but also asking for information on the people to which an individual belongs to and shares common experiences with. That question, especially when directed from a member of a majority race to a member of a minority race, can also make an assumption that the person in the minority may not be a citizen of the nation or may have immigrated in their lifetime, which can mark them as not truly belonging to the nation. Thus an understanding of migrant identity is also useful because the DNA ancestry project does work to trace a migrant narrative for every single human back to a time when populations evolved genetically separate from one another, and even further back to one African ancestor. With these

concepts defined, the historical treatment of them in the hands of white oppressors will further shed light on the legacy of race that DNA ancestry tests inherit.

2.1.1 Defining Nation

In this historical moment, humanity organizes populations and land according to the borders of nation. Scholars of nations and nationalism have differing ideas about the nature of nations and the effect of nation on personal identity, and this analysis of their theory will work to identify the relevant definition of nation with regards to emerging trends in DNA categorization. With a working definition of nation, and its reflections in local or regional personal identities, the impact of DNA ancestry testing results and their language of inclusion or exclusion will have a context within scholarship of international relations.

Speaking to the tension of inclusion and exclusion, features of the nation and its position within international politics as the nation-state are uniquely prepared to discretely categorize the individual citizen. Sovereignty, or the exclusive right to govern a land by the people within the nation, is the feature of the nation-state which elevated the political border to utmost important for the system of international relations. In this system, “one country cannot at the same time be another country. The world of nations is thus conceived as a discrete spatial partitioning of territory; it is territorialized in the segmentary fashion of the multicolored school atlas,” and each nation retains purity in its distinctness.⁷ The importance of sovereignty in the global system supports the conclusion that nations are inherently more different than they are similar, and this can be further extrapolated to indicate that each nation has unique pure essence achieved through sovereign rule by the people of the nation.

7. Liisa Malkki, “National Geographic: The Rooting of Peoples and the Territorialization of National Identity among Scholars and Refugees,” *Cultural Anthropology* (1992), 26.

Theory from prominent scholar of nations Benedict Anderson suggests further how the division between those that belong to a nation and that that do not belong are present in the minds of citizens of the nation. Anderson in part defines the nation as an imagined community, or a fictional visualization of many people that share traits, behavior, and lifestyle in common. The community must be imagined because it is impossible for all the citizens of large or sprawling nations to personally meet and know one another, yet “regardless of the actual inequality and exploitation that may occur in each, the nation is always conceived as a deep horizontal comradeship.”⁸ Ernest Gellner also considers nation on a peer to peer level, where two individuals recognize that each belongs to the same nation due to an agreed-upon metric such as land of residence or shared culture.⁹ Anderson attributes some of the emergence of the imagined community to the modern prevalence of news journalism, which separates the stories of events according to the borders of a nation and fosters the sense that the lives of citizens on the other side of the nation geographically are similar to the individual’s life and matter to the individual, possibly that they might agree to belong to the same nation on meeting each other like in Gellner’s proposed situation. Language being in part tied to ethnicity contributes to the ethnic dimension of the imagined community of the nation, there are those that ethnically belong to the community and those that do not. The community is discrete and must recognize outsiders, the uprooted individuals who do not share sufficient traits in common with the community to blend seamlessly into the imagination.

Breaking down the larger concept of the nation-state, the state aspect of nation-state mainly serves to legitimize the borders of what is already a nation, built out of a people and a land.

8. Benedict Anderson, *Imagined Communities* (New York: Verso, 1983), 7.

9. Ernest Gellner, *Nations and Nationalism* (Ithaca: Cornell University Press, 1983), 6.

Understanding how the nation creates expectations for land and for people will mirror how nation creates expectations for DNA and for reference populations. In both cases, the human system attempts to draw borders and assign meaning, where there neither exist innately.

Land is an observable biological scientific reality, while national borders are not, yet the system of nations makes the multicolored school atlas hold more meaning in the everyday lives of people. This is relevant to the theory of territorialization, which describes the formation and prioritization of linkages between people and place.¹⁰ The mountains and oceans have become territorialized through the system of nations, and now they belong to different populations. Similarly, the genetic code of the human species has become territorialized according to the system of nations. While DNA is an observable scientific fact, on average 99.9% of it is identical between any two members of the human species.¹¹ That remaining 0.1% where differences in traits are located has been made important in the context of the system of nations, because nations are defined by their differences from one another and their borders. No natural borders exist in the DNA of humans, including borders around populations. What the DNA ancestry test companies do is locate patterns in DNA samples from people living nearby, and categorize the DNA they share in common as the DNA that belongs to those people. Troy Duster writing on the limitations of DNA ancestry tests cautioning consumers, “the public needs to understand that these reference populations comprise relatively small groups of *contemporary* people,” and not perfectly representative recreations of ancient human DNA.¹²

10. Malkki, 24.

11. “Genetics,” Smithsonian National Museum of Natural History, accessed July 14, 2020, <https://humanorigins.si.edu/evidence/genetics>.

12. Troy Duster, “Ancestry Testing and DNA: Uses, Limits, and Caveat Emptor,” *Race and the Genetic Revolution: Science, Myth, and Culture*, (2011), 106.

The territorialization of identity involves the way that people identify themselves based on land, and also creates a dichotomy of “rooted” and “uprooted”.¹³ The rooted individual is one that currently inhabits the land where they have roots. These roots refer to the family tree, and land where an individual’s ancestors lived. The roots can also refer to the motherland or fatherland, the land that an individual was born in and potentially spent some of their childhood in. Family and land are connected through those very phrases, and “suggest that each nation is a grand genealogical tree, rooted in the soil the nourishes it. By implication, it is impossible to be part of more than one tree,” like it is impossible to have more than one biological mother or father. This contributes to defining national identity as exclusionary, as other people cannot be counted as part of this organic mass.

The anthropologist Liisa Malkki was of course writing on territorialization in 1992 before the development of consumer DNA ancestry test products, but with this technology in mind we are able to relate the abstract roots of land to the genetic roots of the individual. The availability of genealogy projects though can serve to further territorialize identity, and generate new states of “uprooted” identity. While the individual sense of displacement can generate emotional discomfort in a system of nation, the prejudices against uprooted people can prove more harmful. There are many states of uprootedness, from the homeless to the migrant to the nomad, but each expression carries stigma and mistrust when the disconnection with roots is conflated with the loss of moral bearings.¹⁴ Yet other interpretations of “uprootedness” are more forgiving, such as Eric Hobsbawm’s belief in the reformation of national identity because of its location among a myriad

13. Malkki, 25.

14. Malkki, 32.

of other key identities in an individual's life. He wrote that, "national identification and what it is believed to imply, can change and shift in time, even in the course of quite short periods," which could account for new reformed national identities in response to results of DNA ancestry tests.¹⁵

For the modern context of DNA ancestry testing, the definition of nation and national identity that best fits synthesizes the imagined community of individuals with shared characteristics, and while land and culture are important part of those characteristics they do not refer to the land and culture of the living individual, but those of the modern descendant's ancestor(s). The DNA ancestry test websites use a sense of imagined community when presenting the people of a nation as historically all sharing the same genetic material, and that people sharing the same genetic material can be connected to one another through the site to form new relationships. Any reference to a historically genetically pure population contributing to the formation of any one nation is merely a narrative however, and artificially bolsters the exclusionary aspects of the imagined community through the concept of uprootedness. While

2.1.2 Understanding Race, Ethnicity, and Ancestry

Not only is national belonging an identity that passes from ancestor to descendent, but race too is a social construct using similar parameters of land and population to divide people. Elaborating on the definition of race as a social construct, in the history of human migration and interaction across geographic regions nationality was primarily useful in separating individuals. The expansion of colonization and slavery perpetuated by Europeans and Americans led to a conscious effort to link physical traits of the conquered and enslaved population of Africans with

15. Eric J. Hobsbawm, *Nations and Nationalism Since 1780*, (Cambridge: Cambridge University Press, 1990) 11.

inferiority and link the physical traits of the wealthy and empowered to superiority.¹⁶ Oppression was transformed from a geographic scale to an ancestral scale and resistance of the ruling white race to accept interracial marriages and births and instead identifying them as forms of undesirable “racial mixing” led to physical traits passing from ancestor to descendent and marking the descendent as inferior. Race can thus be defined as a hierarchical system of categorizing people according to socially selected biological traits, and “just as members of ‘real’ families linked by blood were expected to resemble one another, so were members of racial groups descended from a common bloodline seen as sharing similar physical, intellectual, and moral attribute”.¹⁷ Using this definition, Patricia Hill Collins links both racial and national identities to family identity as they are similarly reliant on inheritance. In knowing one’s ancestors through genealogical study, the individual can also learn about the racial traits of their ancestors and draw conclusions about their own place in the racial hierarchy. Likewise, genealogical work can also uncover information about the ethnicity of the individual’s ancestors through its use of reference panel comparison, ethnicity differing from race as it refers to a system of categorizing people based on shared nationality, language, culture, and ancestors¹⁸ When ancestry is a factor of both race and of ethnicity, the two terms can become conflated and ethnicity may be used as merely a euphemism for race.¹⁹ The key distinction is that race represents physical traits and hierarchy where ethnicity does not.

16. Audrey Smedley, “Origin of the Idea of Race,” *Anthropology Newsletter*, 1997.

17. Patricia Hill Collins, "It's All in the Family: Intersections of Gender, Race, and Nation." *Hypatia* 13, no. 3 (1998), 70. 62-82.

18. Jenny Reardon and Kim Tallbear, “‘Your DNA is Our History’ Genomics, Anthropology, and the Construction of Whiteness as Property,” *Current Anthropology* 53, (2012), 234.

19. Troy Duster, “Ancestry Testing and DNA: Uses, Limits, and Caveat Emptor,” 104.

In developing the socially constructed hierarchy of race, scholars and scientists conducted unscientific studies of different populations to demonstrate the biological basis for race and its relationship to traits of personality, intelligence, and behavior. The pseudoscientific belief that racial groups and differences are biogenetic fact is referred to as racial bioessentialism, or in white supremacy discourse, “race realism”.²⁰ One of the earliest examples of racial pseudoscience was in craniometry, where measuring the skulls of different populations “offered ‘evidence’ that the Negro had a smaller brain than whites, with Indians in-between.”²¹ Studies like this from white, largely male scientists followed the scientist’s own societal beliefs, as much of human science is bound to do. The modern DNA ancestry test works with the same situation, of using scientific observations about people to sort them into a category that will be meaningful in society. It is important to recognize that narratives of ancestry are not rigid, have not ever been defined according to one single rule, and shift in response to political developments.

Elaborating now on the political developments of race and ancestry in the American enforcement of slavery, the rules of ancestral descent in categorization can provide a context for how modern ancestry narratives can find meaning in some ancestors, and disavow connection to others. The first societal construct of deciding race is hypodescent, “the classic definition came to be known as the ‘one drop of blood rule’ - any non-white ancestry made you non-white. In practice, one black great-grandparent defined you as legally black; seven white great-grandparents weren’t

20. Aaron Panofsky and Joan Donovan, “Genetic ancestry testing among white nationalists: From identity repair to citizen science,” *Social Studies of Science* 49, (2019), 675.

21. Smedley “Origin of the Idea of Race.”

enough to make you white.”²² This system of identifying race represents a perceived threat to the racial system, because it requires white people to only have children with white people otherwise all the descendants of a white parent and a parent of any other race will never be able to be designated as white and received the societal privileging of that white ancestor. The other societal construct of determining race is hyperdescent, also referred to as blood quantum or blood degree. The descendent must prove a quantity of sufficiently closely related ancestors to prove their membership to a racial group. This method of categorization is in use when determining whether an individual can be legally recognized as part of an Indigenous tribe in America and conveyed the political benefits and resources of tribal membership.²³ Both of these methods for categorization can be used in DNA ancestry narratives to describe the membership of a consumer to a group, and where they are used they will echo the racial hierarchical context by which these forms of categorization emerged.

While race and nationality are identities assigned to individuals at birth, ethnicity can be uniquely accessed or set aside by white people because they do not experience mistreatment due to their perceived racial traits. Mary Waters’ research on ethnic identity as experience by white Americans in the late 20th century finds that “if people no longer perceive a threat to their individual life chances from ethnic discrimination, their ethnic identity can be used at will and discarded when its psychological or social purpose is fulfilled.”²⁴ The emergence of racial

22. Jonathan Marks, “Scientific and Folk Ideas About Heredity,” *The Human Genome Project and Minority Communities: Ethical, Social and Political Dilemmas*, edited by Raymond A. Zilinskas and Peter J. Balint, (Westport, CT: Greenwood), 2001.

23. Jennifer Wagner, “Interpreting the Implications of DNA Ancestry Tests,” *Perspectives in Biology and Medicine* 53, no. 2 (2010), 241.

24. Mary Waters, *Ethnic Options: Choosing Identities in America*, (Oakland, CA: University of California Press, 1990), 7.

discrimination, which unites European ethnic identities under the common racial category of white, helped minimize the change for ethnic discrimination toward the descendants of Europeans. The construction of white identity in the United States was purposefully done to justify enslavement of Africans and to quell the anxieties of the wealthy descendants of European elite about an uprising of white servants and members of the lower classes.²⁵ DNA ancestry tests enter the consumer market where some white American ethnic identities have been discarded by families through the years because only the identity of white was relevant to the family's lived experiences, but now a psychological need arises in the descendants to possess a stable and unchallengeable identity as categories of race are facing new challenges from an anti-racist movement.

These myths, histories, and narratives formed around race help characterize DNA ancestry test narratives in general along with the ideas of nation. While the ideas of race and nation originally began in the minds of scholars, politicians, and scientists, the spread and practice of these ideas took on a context in the Western world through colonization practices. The next part of the literature reviews identity and whiteness in colonial contexts to demonstrate how the core concepts of identity were crystalized in subjugating practices.

2.2 Colonization

While nation and race are concepts that created the language of racial hierarchy for DNA ancestry tests to later develop. The processes of colonization and post-colonial native domination aided in putting these concepts into practice. Following a chronology of colonial action in the late 19th and early 20th centuries to genealogy in the contemporary world provides a few examples of where nation, race, and ancestral lineage collide.

25. Theodore W. Allen, *The Invention of the White Race, Volume 2: The Origin of Racial Oppression in Anglo-America*, (New York: Verso, 2012) 240.

2.2.1 Shifting White Identity and Women's Identity Work

Looking to historical shifts in white identity from records on the European colonization of Southeast Asia aids in describing how the process of colonization established white identity as unstable and in need of ongoing protection. Ann Stoler's work on the subject deals with Dutch and French colonizers in pursuit of business relationships throughout Indochina and East Indies that would allow dominance over the native population, but these European men were also encouraged to form sexual relationships as part of colonial domination. This was advertised in handbooks offering advice to men on how to properly acclimate to living in another nation, "...commercial companies encouraged the procurement of local 'companions for psychological and physical well-being'; to protect European staff from the ill-health that sexual abstention, isolation, and boredom were thought to bring."²⁶ Married men and European women were not initially allowed to live in these colonies, as these populations would have likely impeded a climate of male European sexual domination.²⁷ With the later arrival of white European women the existence of mixed race children between European men and native women became a challenge for the systems of family, citizenship and wealth.

White mothers producing white children of pure European blood to be raised in the culture of the metropole was considered essential to preserving national purity. When it was previously desirable to have children of mixed race to work for their white father's business in the Southeast Asian colonies, mixed children met the standard for white identity and could be admitted to the ranks of the upper class. Later when the influx of European women to colonies desired their own

26. Ann Stoler, *Carnal Knowledge and Imperial Power: Race and the Intimate in Colonial Rule*, (Oakland, CA: University of California Press, 2002), 16.

27. Stoler, *Carnal Knowledge*, 17.

white children to inherit this economic standing, then the children of mixed race were reclassified as native. The racial theory of hypodescent took hold and the mixed race children suddenly lacked sufficient European roots, in spite of possessing an unchanging European ancestry. After this shift in the parameters for white identity, the inclusion of people of mixed race into European society “...represented not only the dangers of foreign enemies at national borders, but the more pressing affront for European nation-states...the essence of the nation, its ‘interior frontiers’”.²⁸

The introduction of European women not only catalyzed the shift in white identity for Southeast Asian colonies, but it also worked to establish the role of European woman in protecting white identity. To perfectly replicate Europe in the private sphere of the home required a white husband and exclusively white children, as European men feared Asian men having mixed children with European women and exacerbating the new challenge of mixed-race children. While European men could blamelessly abandon their mixed-race children to be cared for by Asian mothers and escape societal consequences, the European men of the colonies enacted stricter control over women who had sexual relationships with Asian men.²⁹

The task of tending to the family tree was foisted upon women by reproductive expectations, but also through maintenance of cultural education for the family. In the colonial context this translated to schooling in European language and traditions mostly, though cultural education can also be accomplished in part through genealogical work. This work can honor and revive traditions that previous generations of women may have failed their supposed duty to instill. Outside of the colonial context, white women elsewhere similarly fulfilled the role of cultural

28. Ann Stoler, "Sexual Affronts and Racial Frontiers: European Identities and the Cultural Politics of Exclusion in Colonial Southeast Asia," *Comparative Studies in Society and History* (Cambridge: Cambridge University Press, 1992), 517.

29. Ann Stoler, *Carnal Knowledge and Imperial Power*, 22.

education when wealthy white women's societies adopted genealogy as a hobby. An example of this would be "the Daughters of the American Revolution, which was founded in 1890 and stood for, in the words of its president general, 'the purity of our Caucasian blood,'" ³⁰ Genealogy was a socially accepted hobby for women in racist and patriarchal systems and, "Historically, women have searched for their relatives more than men have..." but also, "this gender schism appears to hold today. The ratio of women to men in donor-conceived and DNA-related Facebook groups is about four to one," ³¹ Marketing DNA ancestry tests to women has a historical narrative of purity to contend with even as modern companies seek to put genealogy technology in the hands of as many consumers possible.

2.3 DNA Ancestry Tests

The DNA ancestry test is a technology that first hit consumer markets as an education and entertainment service at the beginning of the 21st century. Before the tests were marketed for individuals, they were used in paternal testing and to claim membership to an indigenous tribe and acquire the benefits afforded to that tribe. Genealogy hobbyists were among the first adapters of the technology outside of a legal setting, and soon genealogy services already specializing in records and family tree building software merged with existing DNA testing labs to market the two services together as an easy introduction to genealogy. ³² The first step in taking a test is to purchase a physical kit, which includes the swabs, test tube, and mailing materials required to

30. Gregory Rodriguez, "Roots of genealogy craze," USA Today, last modified May 12, 2014, <https://www.usatoday.com/story/opinion/2014/05/12/genealogy-americans-technology-roots-porn-websites-column/9019409>.

31. Stephanie Pappas, "Genetic testing and family secrets," *Monitor on Psychology* 49 no. 6, (2018), 44.

32. Pálsson, "Decode Me!," 186.

collect DNA cells from the individual and send them to the company lab. At the lab, the cells are analyzed, decoded, and compared to other samples in the database especially the reference DNA. The reference DNA includes the first samples gathered by the company, specifically sought after because it is DNA from people whose ancestors have lived in the same place for generations. The lab uploads the decoded DNA and comparison data to the company website, and notes where similarities between samples occurred by labelling a percentage of the customer's chain with the name of the population where the reference sample was taken. The customer signs up for the an account with the company website, and can review both their genetic matches to other website users as well as the percentages of similarity to the reference populations. After the account is created the website will automatically update the user's profile with new user matches and shifts in the percentages as the lab's reference panel grows.

While DNA ancestry tests have only recently become a global technology trend due to the exponential rise in new test users, scholarship of DNA test usage and identity formation has grown in the two decades since this technology was first popularized in media and marketing. The three theories explored in this review contend with the way DNA ancestry tests prompt individual identity change, group identity change, and redefine aspects of personality as belonging to genetic identity instead. Each of these theories provide context for how consumers and the public at large form and prioritize different identities in reaction to the availability of DNA testing technology.

When consumers receive new information from a DNA ancestry test about their ethnic identity, this new information has been observed to be processed in a specific way referred to in the literature as genealogical disorientation. As science on this topic emerged, it was given a

plethora of titles such as genealogical dis-ease,³³ or ethnostress.³⁴ Genealogical disorientation is experienced when the sense of self is shaken by the introduction of unknown ancestral information³⁵. New information alone may be integrated into the sense of identity easily in some cases or not at all if the information is considered unimportant. It is a combination of valuing information about genetic ancestry for the purpose of self-identification and considering test results a surprise that produces disorientation. Literature on the phenomenon is divided on whether the experience is necessarily connected to negative emotion, or can be a more positive experience.

In addition to outlining this phenomenon, research on genealogical disorientation has been conducted to determine the way it affects different populations. The first of these population studies identified that Black participants were less likely to experience genealogical disorientation after reviewing their DNA ancestry test results than white people.³⁶ The second demonstrated that Latina women participants were hesitant to incorporate DNA ancestry test results into their individual sense of identity.³⁷ The analysis of this “affiliative self fashioning” theorizes that because the users already incorporated the racial category of “mixed” into their identities, that the addition of new information entered that “mix” and thus was less shocking and didn’t prompt

33. Rayna Rapp, Deborah Heath and Karen-Sue Taussig, "Genealogical Dis-Ease: Where Hereditary Abnormality, Biomedical Explanation, and Family Responsibility Meet," *Relative Values: Reconfiguring Kinship Studies* (Durham: Duke University Press, 2001), 384.

34. Gregory Cajete, *Look to the mountain: An ecology of indigenous education* (Durango: Kivaki Press, 1994), 190.

35. Alondra Nelson, *The Social Life of DNA: Race, Reparations, and Reconciliation After the Genome* (Boston: Beacon Press, 2016), 75.

36. Alondra Nelson, “Bio science: Genetic genealogy testing and the pursuit of African ancestry,” *Social Studies of Science* 38, no. 5 (2008), 760.

37. Shim et al, “Knowing something versus feeling different: the effects of and non-effects of genetic ancestry on racial identity,” *New Genetics and Society* 37, no. 1 (2018), 45.

change.³⁸ People of color are already grouped together as being all under the racial hierarchy that enforces white supremacy, so the distinct differences in whether an individual is a certain percentage of one ancestry may be viewed as less core to the identity. White people on the other hand were shown in the research to be more likely to be shocked by their DNA ancestry test results, and discussion of the reasoning for this difference suggests that this is because the existing identity assumption of white users is that their identity is “unmixed” and thus 100% white European.³⁹ When a test demonstrates this is not the case or provides any definition within the broad category of European, the white consumer moves from a state of unmarked identity to marked identity, which can be more likely to disorient.

Before the research on how individual consumers of DNA ancestry tests was possible, the public first formed ideas about DNA ancestry tests through media that showcased high profile individuals getting ancestry DNA results, essentially and modeling the process of how an individual could react to the information. Theories of whiteness stemming from these early portrayals of the technology through television entertainment similarly provided a model to the consumer level DNA ancestry companies, who could learn lessons from the content that was well received in the entertainment industry in order to provide entertainment to their customers. Shows

38. Wendy D. Roth and Biorn Ivemark, “Genetic Options: The Impact of Genetic Ancestry Testing on Consumers’ Racial and Ethnic Identities,” *American Journal of Sociology* 124, no.1 (2018), 176.

39. Waters, *Ethnic Options*, 7.

like *Finding Your Roots*,⁴⁰ *Who Do You Think You Are?*,⁴¹ *African American Lives 2*,⁴² *Faces of America*,⁴³ and the *Roots* series by Alex Haley all contributed to the general public experiencing an early exposure to DNA ancestry testing even before it was available at an accessible price point.⁴⁴ From analysis of these series and their DNA ancestry test narratives, researcher Matthew Elliot expanded on the concept of normative whiteness.⁴⁵ This refers to the presumed default ancestry of white people in a given population, in this case he studied American television series and drew conclusions about American normative whiteness. In previous generations the default ancestry narrative for a white American would be that the individual's ancestors arrived in America as pilgrims on Plymouth Rock, and this narrative established that the average white American was culturally and ethnically connected to the war for American independence and the founding fathers of the country. What Elliot observed in the television series of DNA ancestry is the effort of show writers to distance modern white descendants from the Plymouth rock narrative because that narrative, while linking whiteness to the American founding fathers, also linked them to the role of the founding fathers as slave owners. Instead these shows worked to weave together stories of

40. *Finding Your Roots with Henry Louis Gates, Jr.*, written by Henry Louis Gates, Jr., (2012; Arlington: PBS, 2012), <https://www.pbs.org/show/finding-your-roots/>.

41. *Who Do You Think You Are?*, featuring Mocean Melvin, (2010; New York City: NBC, 2010), <https://www.tlc.com/tv-shows/who-do-you-think-you-are/>.

42. *African American Lives 2*, written by Henry Louis Gates, Jr., (2006; Arlington: PBS, 2006), <https://www.pbs.org/show/african-american-lives-two/>.

43. *Faces of America*, featuring Henry Louis Gates, Jr., (2010; Arlington: PBS, 2010), <https://www.pbs.org/wnet/facesofamerica/category/video/>.

44. *Roots*, written by Alex Haley, (1977; Burbank: ABC, 1997), <https://www.pbs.org/black-culture/shows/list/roots-slavery-in-america/>.

45. Matthew Elliot, "The Inconvenient Ancestor: Slavery and Selective Remembrance on Genealogy Television," *Studies in Popular Culture* 39, no. 2 (2017), 85.

immigrant white ancestors and their white descendants, which moves the normative narrative of whiteness to the “Ellis Island-type of ancestor, the late nineteenth or twentieth century immigrants whose roots are located in an alternative homeland, such as Ireland or Italy, from which they were likely forced to flee due to difficult or oppressive conditions.” This theory indicates that the expectations of white people taking a test now may have the Ellis Island migrant narrative in mind and operate under the assumption that their ancestors will follow that pattern, proving their membership with the blameless marginalized white population rather than the oppressive and racist white population. DNA ancestry tests in turn may prioritize the marketing of migrant identities to consumers in further attempts to moderate the white guilt that modern descendants may carry for systems of overt oppression.

Another key observation from Elliot’s work was in identifying the narrative trend of fixed affinities, or the presentation of personal traits other than physical as possessing a genetic component that could be shared by genetic relatives. In the context of the celebrity DNA shows that Elliot studied, these affinities were often supplemented with physical resemblance in the form of presenting ancestor images side by side with the modern celebrity descendent photographed in the same pose or scene. The more the descendent looks like the ancestor, it follows in the shows’ logic, the more personality traits and behaviors the descendent inherited from them. The shows locate ancestors in the celebrity’s past that had a career that resembles theirs today, “implying that their success is due at least in part to a family trait passed down to them.”⁴⁶ An example of the fixed affinity narrative in effect would be when a white modern feminist celebrity’s picture is held up next to the picture of a showgirl ancestor, and the show’s host describes how the celebrity

46. Elliot, “The Inconvenient Ancestor,” 80.

clearly got her both her looks and her identity as “unorthodox” and “a risk taker” from that relative.⁴⁷ Fixed affinities exclusively represent positive traits, but the logic of these narratives does echo the negative traits outlined in the racist history of physiognomy where the individual’s physical traits are passed down bundled with undesirable behaviors and personalities. This theory of identity interpretation in DNA ancestry test narratives has troubling implications if these narratives are internalized by consumers at large.

2.3.1 Criticism of DNA Testing

In addition to white identity as possessing shifting borders with implications on the white mother’s duty to maintain the border, modern engagement between white Western science and native populations presents a modern aspect of white identity: the pursuit of native connection. The conquest of native people continues at the frontier of DNA ancestry testing. DNA research looks to native populations and present both a claim to the genetic material of supposedly ancient populations, while also denying the historical narratives of native people with DNA narratives presented as the definitive human narrative.

DNA projects both commercial and scientific continually search for purer populations who are the latest of descendants in a long line of people occupying one region. Sampling and storing the DNA provided by members of these pure populations is a marketable part of the DNA ancestry test industry. With a larger and purer reference panel, consumers can be better assured that their test results accurately represent the truth about their origin. The replication of the idea that there can be a “pure” member of a population echoes racists myths about racial purity and white race. Along with this myth and using DNA as their proof, Western scientists claim that all humans are

47. Elliot, “The Inconvenient Ancestor,” 79.

interconnected, they implore native people to surrender their genetic material for use in proving this observed phenomenon.⁴⁸ The first implication of this involves the assumption that native people are displaced in time, chronologically behind the modern Western world, and possibly even less evolved. Representing native populations with way contributes to narratives on the natural decline of native populations, which rewrites the history of white Western colonizers deliberately destroying native culture and native life. The capture of rare, exotic, pure native DNA as a resource for Western corporations to make money off of is another exploitation of native people by white identity.

In addition to asserting a white Western claim to native genetic resources, this claim also serves to invalidate native history and storytellers to replace these with a Western narrative that hinges on DNA as a storyteller. An example of this being when Western genetic scientists contacted Aboriginal Australians for use of their DNA in research, they insisted on the DNA narrative that Aboriginal people are originally from Africa along with the rest of the human population. Aboriginal history locates the Australian continent as the place of origin for Aboriginal people, and traditional storytelling practices ensure this history lives on. Western scientists are not only seeking their own origins in native populations, but also effectively speaking over native stories to spatially redefine native populations. Each method of breaking down cultural and ethnic distinctions between these groups replicates dynamics of colonial conquest and updates them in accordance with modern technology. These examples of colonization at work demonstrate how the connection between race, nation, and ancestry have historical underpinnings that can continue to reflect myths of white identity unless significant steps are taken to ensure the DNA narratives resist falling into the same patterns of language.

48. Reardon and Tallbear, “Your DNA is Our History,” 233.

3 Method

To address how DNA ancestry test companies incorporate constructs of white identity into their marketing, I turned to content analysis to capture the exact text and images that the company marketing uses. Content analysis has been favored by other researchers studying the impacts of DNA ancestry tests as well. While other researchers have looked to newspaper articles, blog posts, forum posts, and television series, these forms of content each captured different types of media a step removed from what test consumers themselves encountered. For example, the choice to study newspaper articles reporting on DNA ancestry tests and their abilities was made because at the time of that particular study, the number of DNA test consumers was relatively low and marketing for these tests was more sparse.⁴⁹ Similarly, researchers in the past made the choice to study television series where celebrities or other unique individuals were shown their DNA ancestry test results because these television series were more likely to be the way in which potential DNA ancestry test consumers first learned about the tests, before any exposure to official company marketing.⁵⁰

I made the choice to forgo content analysis on forum and blog posts because of the internet culture around these forms of media has subsided in popularity. In the past, blog posts on the subject of DNA ancestry tests was more easily aggregable into one feed for analysis, and this research could yield interesting results about the attitudes of the general public toward DNA

49. Phelan et al, "Direct-to-Consumer Racial Admixture Tests and Beliefs About Essential Racial Differences," *Social Psychology Quarterly* 77, no. 3 (2014), 298.

50. Elliot, "The Inconvenient Ancestor," 73.

testing.⁵¹ Social media has replaced blogging and forums as the way for the general population to post opinions and ideas publicly as well as interact with the ideas and opinions of others. Forums still exist on the internet, but have since become the domain of niche interests rather than general conversation, and can be used to conduct research on populations like white supremacists that choose not to voice their opinions on social media out of a desire for anonymity.⁵² Social media sites themselves have transformed many times to provide different privacy options and eliminate others. For example, previous research conducted on Facebook groups was available because groups were generally public by default, and users could use pseudonyms with more ease.⁵³ Changes to Facebook have lead to groups being private by default, thus inaccessible to researchers, as well as users finding it more difficult to use pseudonyms and remain anonymous as Facebook prompts users to upload truthful data about themselves including full names.

While visiting company websites to determine the companies of interest to this research, a compelling nexus of consumer interpretation and company interpretation of DNA emerged in the form of testimonial. The testimonial exists as a form of feedback between company and consumer, because the reproduced testimonial gains a seal of approval from the company that indicates that this particular consumer has internalized exactly what the company was attempting to market. Testimonial holds a unique position as a marketing strategy because claims made in testimonials can appear as though they are not made in connection to the companies who produce a product or service. Consumers may interpret the words of the testimonial with skepticism or may consider

51. Jennifer Wagner and Kenneth Weiss, "Attitudes on DNA ancestry tests," *Human Genetics* 131, (2011), 43.

52. Panofsky and Donovan, "Genetic ancestry testing among white nationalists," 659.

53. Wagner and Weiss, "Attitudes on DNA ancestry tests," 44.

the testimonial to be more truthful than any official marketing for the product. While this research does not aim to determine precisely how the use of testimonial influences the consumers of DNA ancestry tests, the nexus between marketing and consumer opinion presented in testimonial was determined to be a compelling reason to focus on company marketing websites as the source of content rather than seek out consumer opinion on social media.

3.1 Building the Catalogue

After determining that the website content from social media sites would be the basis for this research, I further determined which websites and which portions of the websites to catalogue via screenshot. The screenshot proved an invaluable tool for building the catalogue, as website content can change daily at the whim of the company. Initial research on the topic of ancestry tests, particularly within a social media group on Facebook titled “Share your Ancestry DNA Results” offered significant information on what particular ancestry test companies were most popular at the current moment.⁵⁴ User posts from March 1, 2020 through January 1, 2020 were viewed and the names of DNA testing companies were recorded. Each subsequent mention of the company was tallied, and the most popular sites were visited. Additionally, the Google search engine query “best DNA ancestry testing companies” was used to locate consumer purchase guides. Two guides were referenced from the first page of search engine results. The first was a genealogy hobby website’s list of test recommendations aimed toward people who were already interested in ancestry.⁵⁵ The second was a popular culture, science, and technology news site with a list of test

54. “Share your Ancestry DNA Results,” Facebook, accessed February 10, 2020, <https://www.facebook.com/groups/811911892324929/>.

55. Marc McDermott, “Best DNA Test Kits,” last modified July 13, 2020, <https://www.smarterhobby.com/genealogy/best-dna-test/>.

recommendations aimed at people interested in the entertainment value of cutting edge technology.⁵⁶ The two guides and the frequency record from the Facebook group all indicated the same five companies as the current leaders of the industry worldwide. These privately-held companies are AncestryDNA, 23andMe, MyHeritage, Family Tree DNA, and Living DNA. As of 2019, AncestryDNA claimed 15 million test sales, 23andMe claimed 10 million, MyHeritage claimed 2.5 million, and Family Tree DNA claimed 2 million.⁵⁷ The sale reports for Living DNA could not be located easily, though their company advertises itself as one of the world's top 5 testing companies.⁵⁸

After compiling the list of these five companies, I visited each to ensure that they marketed DNA ancestry tests aimed at the general population. This criterion was applied due to the mention of DNA ancestry test companies that market only to specific sections of the population during the phase of research analyzing posts to the Facebook group dedicated to sharing test results. Two companies specifically were recorded within the observed Facebook post period, not with high enough frequency to usurp the top five that consumer guides recommended, but enough to warrant a visit to the site. The first was a site (africanancestry.com) with a target consumer population of African Americans and Black people worldwide with an ancestry test that promised to have more

56. Justin Jaffe, Best DNA test in 2020: 23andMe vs. AncestryDNA and more," last modified August 12, 2020, <https://www.cnet.com/health/best-dna-test-for-2020-23andme-ancestrydna-and-more/>.

57. Antonio Regalado, "More than 26 million people have taken an at-home ancestry test," MIT Technology Review, last modified February 11, 2019, <https://www.technologyreview.com/2019/02/11/103446/more-than-26-million-people-have-taken-an-at-home-ancestry-test>.

58. "Discover where you come from with incredible detail using your DNA." Living DNA Ltd. March 8, 2020, <https://livingdna.com>.

detailed African reference samples than other leading companies.⁵⁹ The second was a site (mytrueancestry.com) targeting people seeking identification with more historically distant ancestors, and the overwhelming majority of possible ancient populations that the test could sort consumers into were located in Europe.⁶⁰ These sites would be a fascinating point of future research into the function of targeted DNA ancestry tests. When looking into the range of possible ancestry test results for consumers at each of the top five companies, each range of results did include regions and nations across the world and were considered applicable to the general population.

It is a point of interest that each of the five sites listed as leaders in the industry for 2020 were located in wealthy nations located within Europe or with significant historical ties to Europe. I classify the United States as having significant ties to Europe because of its origins as a British colony, and similarly I classify Israel as having significant ties to Europe because the United Nations contributed to establishing the state in response to a United Kingdom government request to the General Assembly. There are also historical migration patterns from Europe to both the United States and Israel, referring specifically to the Ellis Island immigrant route and post-World War II migration of European Jews. 23andMe headquarters is in California.⁶¹ AncestryDNA

59. “African Ancestry,” African Ancestry, Inc., accessed February 29, 2020, <http://www.africanancestry.com>.

60. “My True Ancestry,” MyTrueAncestry AG, accessed February 29, 2020, <https://mytrueancestry.com/en>.

61. “About Us,” 23andMe, Inc., accessed May 19, 2020, <https://mediacenter.23andme.com/company/about-us>.

headquarters is in Utah.⁶² Family Tree DNA headquarters is located in Texas.⁶³ Living DNA is registered in England and Wales.⁶⁴ MyHeritage is located in Israel.⁶⁵ Other early DNA ancestry companies previously researched were located in California, Florida, England, and Iceland.⁶⁶ The previously mentioned company African Ancestry is registered in Maryland.⁶⁷ The previously mentioned company My True Ancestry headquarters is located in Switzerland.⁶⁸ This survey of the locations of companies within the DNA ancestry test industry provides context for analysis of the marketing.

Having researched the top companies to locate them geographically as well as determined their applicability to the general population, I determined what content from their webpages to catalogue. Placing myself as the researcher in the role of a consumer considering whether or not to purchase a DNA ancestry test, I decided that an exhaustive catalogue of every page located on a company's website would not represent what content the average consumer was exposed to. Instead I decided to catalogue all the content of 10 unique webpage urls located at each website,

62. "Company Facts," Ancestry, accessed May 19, 2020, <https://www.ancestry.com/corporate/about-ancestry/company-facts>.

63. "FamilyTreeDNA Terms," Gene by Gene, Ltd., accessed May 19, 2020, <https://www.familytreedna.com/legal>.

64. "Living DNA Terms of Service," Living DNA Ltd, accessed May 19, 2020, <https://livingdna.com/legal/Living-DNA-terms-of-service>.

65. "MyHeritage - Terms and Conditions," MyHeritage Ltd., accessed May 19, 2020, <https://www.myheritage.com/terms-and-conditions>.

66. Pálsson, "Decode Me!," 187.

67. "Terms," African Ancestry, Inc., accessed May 19, 2020, <https://africanancestry.com/terms>.

68. "DNA Check LLC," DNA Check LLC, accessed May 19, 2020, <https://dnacheck.io>.

representing 10 times that a consumer would actively select and click on a new link within the website to learn more information. Starting from the homepage, I clicked through any links relating to DNA ancestry testing specifically, ignoring links directing consumers toward DNA health testing. After determining the 50 DNA ancestry test webpage urls, I took screenshots of all the content located on each page. In total, I catalogued 425 images for analysis. These screenshots were taken on the dates of March 2, 4, and 8 in 2020. Early spring of 2020 was key time to record the sites, because they run holiday sales in late winter to attract holiday gift purchases. Any large-scale updates to the websites would likely go live in advance of this high sale season. Additionally, the screenshots were taken before the 2020 covid-19 pandemic affected Europe and the United States where the companies operated, so the website content in early March had not yet changed in any way to reflect the pandemic.

3.2 Content Analysis

3.2.1 Quantitative Frequency Records

Some quantitative content analysis was used to inform statistics about the frequency of different concepts and populations on the DNA ancestry company websites. Using NVivo software, the catalogue of images was analyzed for instances where the marketing discussed the identity of an individual, either real or hypothetical. Hypothetical individual refers to a fictional consumer of a DNA ancestry test that demonstrates one example of the kinds of results someone could expect to get.

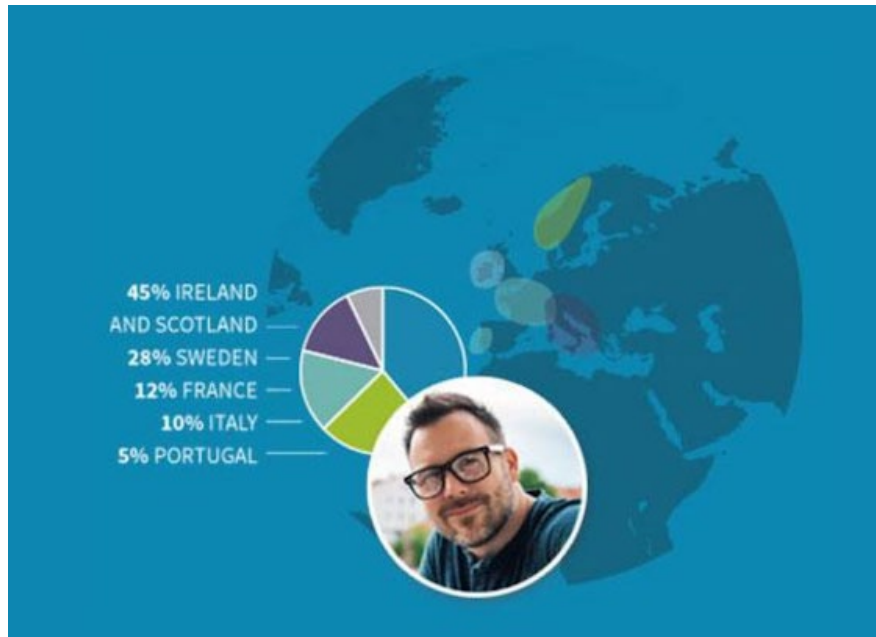


Figure 1. A hypothetical individual graphic, showing a stock image of a pale man with straight hair, a pie chart of different European nationalities, and a map with land color coded to match the pie chart.⁶⁹

The example in Figure 1 would be coded as “diverse” because the hypothetical individual is represented by multiple nations and no one nation is singled out as his one true identity. The other instance of identity discussion on these websites was coded as “singular,” because the image or text indicated that DNA ancestry test results provided the individual with the one region, ethnicity, or nationality that they truly belonged to. These terms are at times used interchangeably by the company, which contributes to confusion about what the consumer results represent.

Additional frequency recording was done to code for instances where a real or hypothetical individual is discussed and their race, ethnicity, or nationality is included or displayed. Fig 1 would be coded several times for “European” nationality because the company marketing team

69. “DNA, genealogy, and your family tree — the perfect family history combo,” Ancestry, accessed March 2, 2020, <https://www.ancestry.com/dna/lp/dna-family-tree>.

constructed an example pie chart where each part of the hypothetical individual's ancestry is a different European nation specifically. The stock photo would also be coded for "white-passing traits" due to the skin pigmentation and hair texture of the model that the marketing team chose to feature on the site.

3.2.2 Qualitative Images and Text Analysis

Qualitative coding for the catalogue of website images was done at first deductively through looking into theories of DNA ancestry tests formed by other researchers in the field, and then with inductive coding to identity patterns relevant to the concepts of whiteness and identity. The concept of genealogical disorientation led to a coding term of "surprise," which would be used for instances where the marketing on the websites discussed consumers being unprepared for their DNA ancestry results.⁷⁰ Instances where the surprise originated from familial relations were excluded from coding, only instances of surprise related to race, region, and nationality. Ambiguous discussions of surprise that could not be pinned to a familial or regional origin were included with coding for surprise.

The concept of fixed affinities also led to the creation of coding in the qualitative content analysis. The term "resemblance" was used to code for instances in website marketing where the individual was displayed as having a trait in common with their ancestor, specifically when that trait was unrelated to physical appearance or medical data. Family resemblance extending beyond physical traits into personality quirks or life events were coded this way, as well as a modern individual's resemblance to the traits ascribed to a historical people. An example of this would be if a man were described as fierce much like the fierce Scandinavian Vikings he was descended

70. Nelson, *The Social Life of DNA*, 75.

from. It would be coded as resemblance in the same way as if the man were described as fierce much like his fierce Scandinavian great grandfather, who was a famously competitive wrestler.

Lastly the concept of normative whiteness from the literature on DNA ancestry testing research guided the development of a code to describe the migration narrative. That term “migration” was used to track where websites mentioned migration and what populations the marketing applied migration narratives to. When websites advertised that consumers would be able to “uncover your maternal heritage going back to Africa” with the help of their DNA ancestry test results, this was coded.⁷¹

The two inductive patterns that emerged in coding were concerned with maintenance of traditions, and instances where history was discussed without mention of the history of oppression. The first of these was coded as “heritage” and included both examples of when heritage was maintained, as well as when heritage was lost. Examples of what heritage included were included in this coding, as definitions varied. The pattern of voids where discussion of oppression could take place included mention of historical white ancestors present in black family trees, as well as instances where marketing discusses the potential difficulties a consumer experiences when locating records of different historical people. The same code was used when the testimonials portrayed the stories of white customers and non-white customers, as examples of omitting historical context appeared present for both populations.

Using the coding outlined here and a catalogue of the most popular and recommended DNA ancestry test companies of 2020, I analyzed 425 images to delve deeper into the modern marketing of DNA ancestry. As mentioned, marketing can provide a rich nexus between consumer

71. “Explore your maternal ancestry with mtDNA,” Gene by Gene, Ltd., accessed March 5, 2020, <https://www.familytreedna.com/products/mt-dna>.

and company with the testimonial, whose content explicitly represents the absolute successful end goal of marketing which is to purchase the product or service then recommend it to other, leading to more purchases. Marketing as a human creation using principles of art in compelling writing and visual design also reflects the values of its creators, the leadership teams that run DNA ancestry companies. The analysis of marketing in this research looks at both the attitudes of both consumers and companies seeking to replicate consumer attitudes while simultaneously projecting the attitudes of the company leadership team. With this context, the following analysis must be considered in the context of both propagandistic work designed to create a consumer, as well as the results of corporate opinion polls working hard to cater to the ideas of an existing consumer.

4 Analysis

In addition to the quantitative work done to capture trends in the presentation of DNA ancestry test advertising, this section of analysis considers emergent topics of DNA and white identity through cases found in the catalogue of content. As can be expected from any good web design work, website graphics and text worked together to frame the ideas expressed in the advertising content. My points of analysis are arranged chronologically following the path of consumer messages: what is important about DNA, how does DNA affect your identity, and what do you do with a DNA identity.

4.1 Singular Identity and Choice of Truth

Discrete identities were coded for because of literature on the subject of nation and discrete borders, yet the discrete border replicates again in DNA science. The DNA ancestry test in particular manages a very tenuous balance between the argument that humans are all the same and connected, and that each human is unique. There are ways that each side of this dichotomy can be used in conjunction with white concepts of identity though. This section deals with how the insistence that each individual is unique reinforces the discrete borders of identity like the borders of nations, and resists against portraying overlap in identity. Family Tree DNA, which was founded two decades ago, states on its website that, “genetic genealogy is a still brand new thing” and that “we are all unknowingly mapping out a singular story for all of us.”⁷² That singular story could refer to the European insistence that genetic science is the one truth in spite of contradicting

72. “FamilyTreeDNA Blog,” Gene by Gene, Ltd., accessed March 5, 2020, <https://blog.familytreedna.com>.

indigenous narratives.⁷³ It could also refer to the individual level, where each person has a singular story that they may unknowingly carry with them in the DNA, not knowing exactly what category they truly belong to and which categories are less true.

4.1.1 Family History Versus DNA Testing

While individuals both real and hypothetical featured in website marketing always were pictured with color pie charts and list representing a variety of racial, regional, or national identities, it was less common to see those results reflecting in the text of the company marketing. When the charts were paired with a picture of a customer or a stock image model, the results tended to include at least one African country in the chart paired to the image of a black person, and include at least one European country in the chart paired to the image of a white person. While the pie charts typically displayed between 5-10 results, the text present on the websites was more likely to focus in on one result and highlight its relevance. When coding for identity, 50 out of 68 instances of identity discussion singled out one identity as the relevant one in the life of the individual, which was close to 74% of the time. Only 18 of 68, or 26% of discussions of identity focused on the diversity of identities present in the individual and resisted framing each identity as anything but fully equal.

The reasoning behind choosing which identity is implied to be the true identity varies across individual instances. In some cases, it appears as though the type of test determines which identity is relevant. One customer testimonial explains their reason for identity prioritization: “I love how 23andMe zeroes in on a particular country where your ancestors came from. By using one of those areas, I was able to find information on both of my Norwegian grandparents, great

73. Reardon and Tallbear, ““Your DNA is Our History”” 234.

grandparents as well as Great great great grandparents”⁷⁴ This quote shows an interesting balance between acknowledging that the individual possesses DNA that can be categorized by the company test in many ways, but also the location of two grandparents out of a possible four as the reason why the individual considers Norwegian to be the important identity to them. In this case, the individual had a family history located in Norway, and DNA test results of some unknown percentage that indicated Norway, and so Norway takes precedent as the only identity that needs to be mentioned in a testimonial.

There are other outcomes when the family tree and DNA ancestry results do not match up to deliver an individual singular identity to them. AncestryDNA has a specific Q&A website page that suggests how consumers may react to the situation where their genetic ancestry test does not reflect what the consumer previously considered a true part of their identity. Specifically, the Q&A addresses an update to the company’s reference panel that recalibrated the algorithm that sorts consumer DNA. The section reads:

“My previous results matched my family history more accurately. Which results are more correct? Your latest ethnicity estimate has been determined using a larger reference panel, which allows us to estimate your ethnicity with a higher degree of precision. That said, your DNA is only one element of a much larger picture, and your family history and relatives will play an important role in your genetic make-up, even if they are not specifically reflected in your AncestryDNA ethnicity estimate.”⁷⁵

The marketing team specifically worded the hypothetical consumer’s question to show that they seek the “more correct” identity, which indicates a prioritization method that consumers engage

74. “Ancestry + Traits Service,” Ancestry, accessed March 2, 2020, <https://www.23andme.com/dna-ancestry>.

75. “AncestryDNA® ethnicity estimates now have even greater precision,” Ancestry, accessed March 2, 2020, <https://www.ancestry.com/dna/lp/ancestry-dna-ethnicity-estimate-update>.

when they encounter their DNA ancestry results. This answer then notes that ethnicity is determined by a precise science that the company offers using their exclusive reference panel. This marketing requires a consumer to believe that scientific observations and measurements are more factual than archival record, which is what previous racial pseudoscience also argued when demonstrating racial bioessentialism through head measurements.⁷⁶ The implication is that DNA ancestry test ethnicity should matter more to the individual than their family records. And yet, the provided answer also allows the individual to choose family record over DNA ancestry test because the test remains only a part of the bigger picture when it comes to identity. Family history and relatives are held as important by the company, because to indicate otherwise may alienate consumers and garner negative reviews. The next part of the Q&A reads:

“My mother/father is from X region, why is it no longer included in my results? While we each inherit 50% of our DNA from our father and 50% from our mother, we do not get an equal 50/50 split of all our parents’ DNA. This means, that if your parent only has a small percentage of DNA from a specific region, you might not inherit any of that portion of their DNA.”⁷⁷

Here, DNA science is elaborated on as the reason for differences between family history source for identity and genetic ancestry test source of identity. The existence of these questions posted to the website in the form of a frequently asked question guide paints a picture of what the consumers of these tests have said to the company in the past. Consumers who dislike that DNA ancestry tests portray their ethnicity in one way have likely argued with the DNA science before in attempt to prove that they do belong to the nation that they imagined they did before taking the test. “...you

76. Pálsson, “Decode Me!,” 186.

77. “AncestryDNA® ethnicity estimates now have even greater precision,” Ancestry, accessed March 2, 2020, <https://www.ancestry.com/dna/lp/ancestry-dna-ethnicity-estimate-update>.

can have an ethnicity you know of in your family history that doesn't show up in your ethnicity estimate... You're much more than a pie chart and a handful of percentages.”⁷⁸

When individual companies did not sort consumer DNA according to nation and instead by region, like in the case of Family Tree DNA, explanations for how family history and genetic categorization interacted were slightly more nuanced. While advertising that DNA results will “confirm family history and tradition,” in the website FAQ the company addresses consumers who reach out about their genetic results being wrong.⁷⁹ The company responds by providing an explanation of why they don't sort DNA according to nation necessarily, saying that “DNA mutates regionally rather than across man-made borders. It is also common for some individuals not to see certain reference populations, as they may not have received enough genetic ‘markers’ for that particular population throughout generations,” the acknowledgment of the nation as a recent and human construct works to displace the nation for identity somewhat.⁸⁰ Yet the regional identity only stands in for national, as the wording of the question still belies that the individual is searching for that specific singular marker of identity. Though the DNA ancestry company websites, the tension between family records and DNA test results still resolve primarily in one identity selected for relevance.

78. “More Than a Pie Chart and a Number: Reading Your Ethnicity Estimate,” Ancestry, accessed March 2, 2020, <https://www.ancestry.com/lp/ethnicity-estimate/reading-your-ethnicity-estimate>.

79. “Do you know what you're made of?,” Gene by Gene, Ltd., accessed March 5, 2020, <https://www.familytreedna.com/products/family-finder>.

80. “Do you know what you're made of?,” Gene by Gene, Ltd., accessed March 5, 2020, <https://www.familytreedna.com/products/family-finder>.

4.1.2 Specialty Reference Panels

In cataloguing the top DNA ancestry companies, the existence of separate reference panels aiding one company's categorization of consumers stood out as an example of singular identity prioritization. The selling point of Living DNA tests is that after running the consumer DNA against their general panel, if they consumer is shown to have sufficient DNA from a select geographic location then they will have their DNA run again against a specialty panel comprised only of DNA sampled from people in that region. The structure of this tiered reference panel system appears antithetical to the premise of many other company's marketing, where all consumer samples are compared to a ever-growing body of reference samples. The more samples referenced, the more detailed a consumer's percentages can be. But by marketing a tiered reference panel system, instead of receiving the same service as all other consumers, the qualifying consumers will instead be given special treatment because their DNA has earned them a second panel and a more detailed and specific report. These populations of consumer are specifically those with African DNA, European DNA, and British Isles DNA.

The selection of these populations for the development of a secondary panel revolve around the different populations of consumers for Living DNA tests. As a company founded in England, British Isles DNA would be easiest to collect for a reference sample. Additionally, the tests envision that people of European descent will buy tests. And the most recently added panel, African history, would be a strategic marketing choice to recapture some of the consumer market that swore off the top five DNA ancestry companies in favor of African Ancestry Inc. with their popularized wider African reference panel. A testimonial featured in the advertising page for the African ancestry panel is one of the few places across the companies' websites where slavery is mentioned by name, as a woman acknowledges that this panel correctly validated her family

narrative as descendants of an emancipated slave who was kidnapped from West Africa. The subject of slavery is generally avoided in the advertising for the all-inclusive global reference panels sold by each DNA ancestry testing company.

A key point of comparison between these samples is the difference in DNA percentage required by consumers to qualify for bonus content through Living DNA. Consumers need only present over 5% African ancestry for the African reference panel content.⁸¹ More DNA is required to earn the European reference panel content, a whole 10%.⁸² Lastly, only someone with 20% British Isles ancestry is eligible to discover their true ancestry among the subdivided ancient people of these lands.⁸³ Not only do the exclusivity of these additional panels help to ensure their results receive prioritization as singular identity in the minds of consumers, but the difference in qualifying percentage reintroduce the myth of hypodescent into the industry of ancestry DNA tests. If DNA worked by perfectly divided group DNA in half with successive generations, and if 100% pure DNA was the starting point, having over 5% African ancestry would result from a single 100% pure African great great grandparent and 15 great great grandparents that all possessed 0% African DNA. This hypothetical situation is impossible, as discovered through a modern scientific understanding of DNA. But as previous discussion of autosomal DNA company FAQ sections demonstrate, the consumer does in fact still hold onto the idea of perfect division of group DNA and use that to consider how they should identify.

81. "The world's most advanced African ancestry DNA test to discover your roots," Living DNA Ltd, March 8, 2020, <https://livingdna.com/african-ancestry-dna-test>.

82. "Unlock brand new European regions today with our full ancestry kit," Living DNA Ltd, March 8, 2020, <https://livingdna.com/european-ancestry>.

83. "The most advanced DNA test to discover your British ancestry," Living DNA Ltd, March 8, 2020, <https://livingdna.com/british-ancestry>.

These two points of analysis help to contextualize how the interpretation of DNA ancestry results are presented, regardless of what those results actually are. The companies zero in on particular countries or populations, and the consumer then learns more about what specific identity holds the most information for them. Family lineage may be held up in comparison to autosomal DNA results, and while the companies refuse to ruffle feathers by outright dismissing the importance of family records, they emphasize again and again how science adds validity to the identity the company presents. To further encourage identifying with a single group, one company also offers free additional reference panel research depending on the percentages present in a consumer's sample. These findings reflect the ideas of sovereignty and discrete identities regarding theory of nations, and directly contradict certain claims about DNA ancestry companies promoting diversity and an understanding of individual identity as multifaceted.

4.2 Resemblance to Roots

Using the literature of fixed affinities demonstrated in popular culture dealing with DNA ancestry tests, findings for this section examined the way that marketing for DNA ancestry tests promoted the idea of discovering fixed identities through DNA science. This was alarming to discover on the sites themselves because of the obvious lack of scientific support for the existence of such affinities. The presence of fixed identity on the websites of DNA test companies themselves reflects an awareness that DNA companies have about the popular culture narratives and an effort to simulate the VIP treatment of celebrity test result shows for the average consumer. While the literature already demonstrates how individuals can pick and choose which affinities are most relevant to them, giving all fixed affinities an equally scientific basis in DNA is the effect of marketing with companies who do not get to curate which affinities they demonstrate to users.

4.2.1 Reading Personality Into Ancestry

A prominent example of the fixed affinity narrative in the marketing of DNA ancestry test companies is how Ancestry DNA promotes their services using a white woman's testimonial about the life changes she made after learning her test results. This woman, called Heidi on the site, learned that one of her ancestors was a criminal. This male ancestor allegedly brewed moonshine during American prohibition, a crime which has been reimagined in modern context as fun or at least insignificant rather than stigmatized. What the customer then interprets about herself and her genetics from this story in the testimonial follows fixed affinity logic. Learning about a criminal ancestor did not inspire shame or guilt in her, but rather "Heidi had an epiphany: the adventurous spirit she had always felt was truly in her bloodline."⁸⁴ In the customer's perspective, a gene for adventurous spirit passed down to her from an ancestor, and the company's marketing chose to feature this story prominently to entice consumers to imagine their own genetic inheritance.

Not only does the customer attribute this personality to her ancestral bloodline, but company marketing demonstrates that the customer's life choices will reflect that fixed affinity. The customer from the testimonial chose to alter her career path after learning about the supposedly genetic basis for her adventurous spirit: "Inspired by her discovery, Heidi decided to follow her wild side. She quit her office desk job, and headed for the swamps of Florida. Today Heidi dodges alligators and snakes as she leads eco tours a million miles away from the life she used to lead."⁸⁵ This marketing line demonstrates that holding an office job was denying what Heidi was born with, a wild side passed down to her by her criminal great grandfather, and that her capitalistic

84. "Heidi found her rightful place among the rule breakers and risk takers in her family," Ancestry, accessed March 2, 2020, <https://www.ancestry.com/cs/heidi>.

85. "Heidi found her rightful place among the rule breakers and risk takers in her family," Ancestry, accessed March 2, 2020, <https://www.ancestry.com/cs/heidi>.

purchase of a DNA test allowed her to transform herself and become truly happy. The trait of wildness here is interpreted as a closeness to the excitement of working with dangerous animals, rather than an inherent incompatibility with fitting into society that could be stigmatized.

Proposing a fixed affinity model for understanding DNA and genetic ancestors has far reaching implication beyond the discovery of an adventurous spirit or wild side. There are specific aspects to Heidi's story that make it appear as a entertaining story rather than the proponent of a harmful lie that echoes physiognomy. First, the customer's ancestor was guilty of a crime which no longer exists, because prohibition in American has ended. Second, the customer appears to be a white woman, a social category that is not typically stereotyped as criminal.

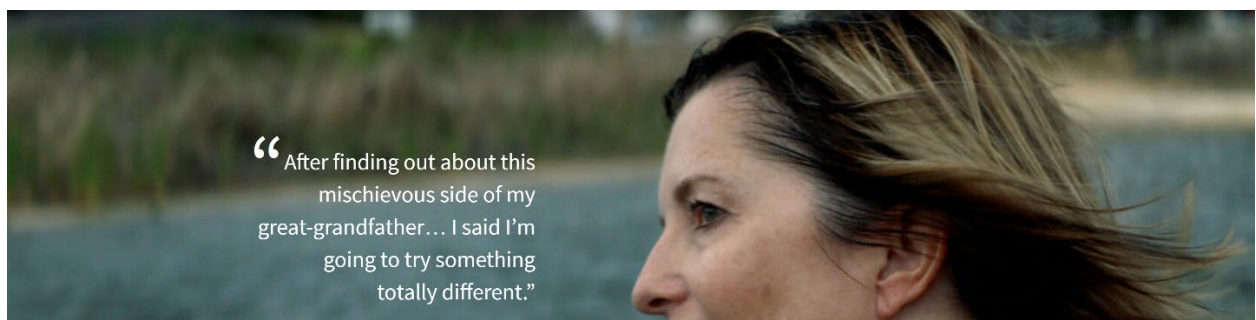


Figure 2. A woman with pale skin and straight hair shown with a swamp in the background, her testimonial quote reads “After finding out about this mischievous side of my great-grandfather... I said I’m going to try something totally different.”⁸⁶

The figure above shows a photo and quote from the website, where the customer Heidi uses the euphemism of “mischievous” to mean criminal. This euphemism, along with “wild” and “adventurous” further distance the white customer Heidi from having a fixed affinity for crime, lawlessness, and posing a danger to society. While the marketing displays that fixed affinities are

86. “Heidi found her rightful place among the rule breakers and risk takers in her family,” Ancestry, accessed March 2, 2020, <https://www.ancestry.com/cs/heidi>.

positive traits or simply harmless quirks that entertain customers, the professed existence of fixed affinities contributes to ideas of bioessentialism regarding inherited racial personality traits.

4.2.2 The Myth of a Blue Life

While Heidi's story focused on the personality trait fixed affinity rather than a fixed affinity for behavior, marketing from another DNA ancestry website about the genetic basis for joining the police does suggest that some people are born "blue," or born to hold the occupation of cop. The term "blue lives" gained popularity in a reaction to the emergence of the Black Lives Matter movement in the United States in 2015, which works toward ending the phenomenon of American law enforcement targeting and killing Black Americans and inflicting violence on Black communities.⁸⁷ The political goal of "blue lives" reactionaries is to honor the heroes of law enforcement and strengthen public support for police.⁸⁸ The identities that each organization aims to empower are noticeably unequal. A Black person targeted for violence because of their skin pigmentation can never escape persecution because skin pigmentation is a genetic trait. Any person who feels they are not supported in their job need only quit and pursue another career path so that they can receive more support. However, when a member of law enforcement uses the myth of fixed affinity to lie about there being a genetic basis for their profession, the identity of Black and the identity of cop are falsely considered equally immutable.

The marketing team of one ancestry DNA test website chose to represent the myth of fixed affinity and police profession specifically to demonstrate the kind of family connections to

87. "What We Believe," Black Lives Matter Global Network, accessed August 8, 2020 <https://blacklivesmatter.com/what-we-believe>.

88. Joe Grit, "What is Blue Lives Matter?," Blue Lives Matter, last modified July 13, 2016, <https://archive.bluelivesmatter.blue/blue-lives-matter>.

consumers might make when taking their test. Testimonial story from half-brothers Dave and Eric describe how their ancestry tests confirmed they shared DNA in common. “It had to be more than just chance that [Dave] and [Eric] became cops. Looking back now Eric reckons, it’s in the DNA. He might be onto something.”⁸⁹

The marketing material states that coincidence is not the reason that two previously unknown relatives share the same profession, in spite of that being the only scientifically supported conclusion. Instead, the fixed affinity myth is replicated in text of the website without quotations marks, which may have aided in separating non-expert opinion from the scientific information found elsewhere on the site. Though the myth was not applied directly to non-white customers in promotional material, the advertisements suggest that the myth is generalizable and could become the narrative of anyone that chooses to use their testing products. By writing testimonials of fixed affinity, the company 23andMe suggests that someone’s profession isn’t truly a choice they get to make, but instead a genetic calling from their ancestors. Ignoring that calling leads to a denial of the true self, such as when Heidi worked an office job instead of indulging her adventurous spirit. Fixed affinity narratives located on DNA ancestry test websites package a pseudoscientific myth about genetics alongside any scientific findings of the tests, making the myth appear more credible.

4.3 White Surprise and Unexpected Relatives

While the previous sections of analysis dealt with what specific parts of the DNA test results narratives the companies expect consumers to internalize, this section will begin to address how marketing shows consumers how they will feel about their DNA ancestry test results. Part of the way that DNA ancestry companies showcase how consumers are meant to feel about results is

89. “23andMe Customer Stories,” 23andMe, Inc., accessed March 2, 2020, <https://blog.23andme.com/category/23andme-customer-stories>.

by identifying who the intended audience of the product is, and then providing resources to address the feelings that the intended audience is most likely to have. Part of the way that the DNA ancestry companies identified the intended audience of their marketing is to show adoptees, the children of sperm donors, and someone trying to reconnect with an absent father or his family. While these populations have a well established history of seeking DNA testing services in the past, the company's consumer base could not have climbed to such high number and record sales on family seekers alone. Instead, the marketing uses multiple tactics to indicate the services of the top DNA ancestry tests are used primarily by white consumers.

4.3.1 Overrepresentation of Whiteness and European Identity

When performing quantitative content analysis on the websites, the results of frequency counts for race and ethnicity test representation show that websites overwhelmingly show photographs of people with white traits and discuss consumers who have European ethnicities. About 63% of identities people depicted on the site had one of these two identities, while only 38% of people depicted had a non-European ethnicity and showed the traits of people of color. Finding this frequency alone does not necessarily answer any questions about the userbase of DNA ancestry companies, but it is part of a larger correlation.

The higher frequency could be coincidental and does not demonstrate any statistically significant causation pattern between the rates of white people and Europeans depicted, and the rates of white people and Europeans using the test. The higher percentage of white and European people depicted could reflect world population, or the population of English speakers for example as the DNA ancestry test companies were viewed only in my own native language of English. More research could be conducted on this, but instead I question why the marketing for a DNA ancestry test need be perfectly representative in its depiction of different races, ethnicities, and

nationalities at all. A service that presents its DNA sample reference population as comprehensive has incentive to comprehensively depict different world populations. Serving a goal of diversity could be interpreted to mean that the marketing on the website would buy stock photos of diverse photos to use throughout the site, and choose to craft hypothetical DNA test results that include a wide array of regions across the globe.

Some websites purposefully include depictions of racial and ethnic diversity in select areas of the site. One example of this is in discussion of the reference panel populations on the MyHeritage website, people of different ethnicities and races were shown in cultural garb like the figure below:

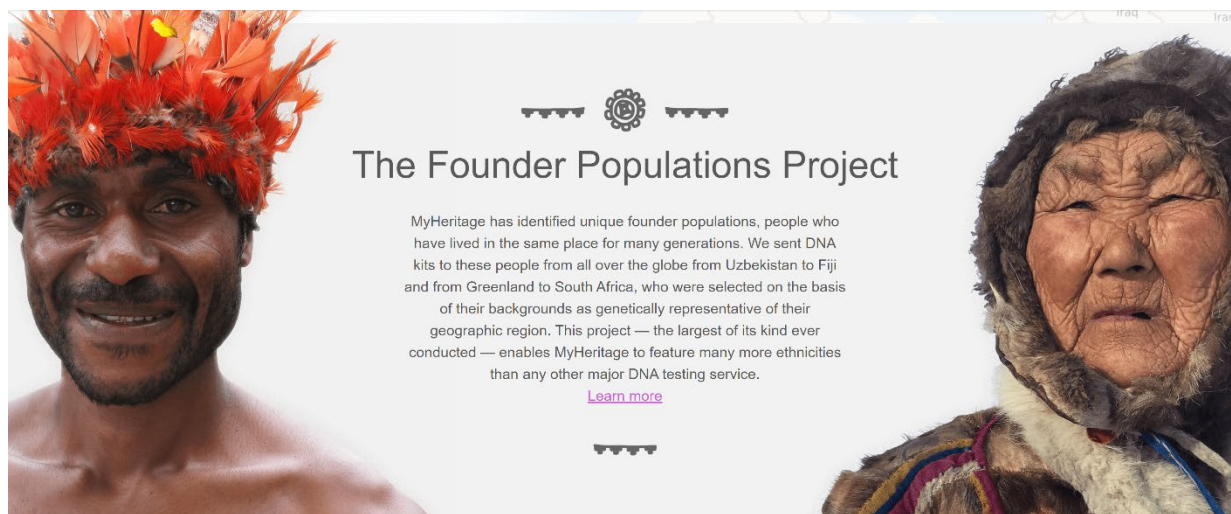


Figure 3. A photo of a smiling man with dark skin wearing a feathered headress, arranged next to a photo of a person with brown, wrinkled skin wearing a hooded garment made of fur. The accompanying text reads “The Founder Populations Project. MyHeritage has identified unique founder populations, people who have lived in the same place for many generations. We sent DNA kits to these people from all over the globe from Uzbekistan to Fiji and from Greenland to South Africa, who were selected on the basis of their backgrounds as genetically representative of their geographic region. This project — the largest of its kind ever conducted — enables

MyHeritage to feature many more ethnicities than any other major DNA testing service.”

Followed by a link to “Learn more.”⁹⁰

While these photo choices serve to capture the robust quality of the reference panel sample and reassure consumers that the company has not spared any expense in capturing a genetic snapshot of the world, following images imply who benefits from this diversity.

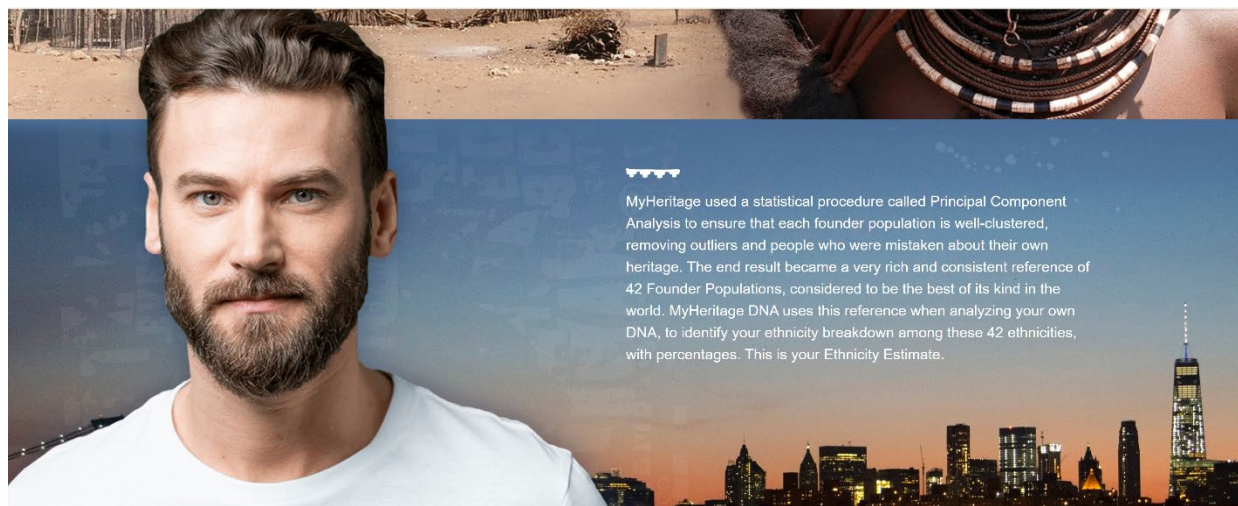


Figure 4. A pale man with straight hair, light eyes, and a white T-shirt is shown in front of a city of skyscrapers⁹¹

The bottom of the page addresses the consumer themselves, writing in second person to drive home its message. The members of the reference population are referred to as representative of “their” populations, and picture in contextless cultural garb on a blank background. The consumer, a white man in a white T-shirt, is contextualized with the wealth and modernity of a city and it is he that inherits DNA from the ancient population. Researchers Reardon and Tallbear discussed the

90. “Ethnicity Estimate,” MyHeritage Ltd., accessed March 8, 2020, <https://www.myheritage.com/dna/ethnicity-estimate>.

91. “The Founder Populations Project,” MyHeritage Ltd., accessed March 8, 2020, <https://www.myheritage.com/dna/founder-populations>.

propensity for DNA projects to envelope indigenous DNA into the history of white Europeans, and it appears this marketing follows that same pattern.⁹² That envelopment implies that “unique founder populations” like those mentioned in Fig # are disappearing and dying out, and tasks white Europeans with cataloguing the indigenous so they can consider indigenous people their ancestors, or the ancestors of the whole human species. The text in Fig # mentions the other outcome of DNA reference panels as well, that some indigenous people are told by the DNA company that they are “mistaken about their own identity.” Such depictions of diversity help establish that DNA ancestry companies serve the interests of white identity and white identified consumers specifically.

4.3.2 Genealogical Disorientation Management

Another way in which DNA ancestry test companies serve the interests of white identity specifically is through their representation of a white experience: the surprising revelation of an unknown identity. Previously discussed in the review of literature, genealogical disorientation refers to having one’s own sense of identity shaken by new ancestral information. Ideas on why this state of identity insecurity is more likely to affect white people have to do with how whiteness is an unmarked racial category, where its members are allowed through the hierarchical system of race to think of themselves as merely people rather than white people. The white experience of genealogical disorientation presented multiples instances across website marketing as both a positive experience resulting in connection to new family and new cultural experiences, but also prepares for consumers to be upset by their newly revealed ancestral connections.

The first way DNA ancestry test companies present the narrative of genealogical disorientation is through the reproduction of testimonial from customers who experienced surprise as part of their test process. Customers may experience surprise for a variety of factors, and while commonly the

92. Reardon and Tallbear, “Your DNA is Our History,” 236.

surprise testimonials dealt with newly discovered relatives, some described newly discovered ethnicities. A testimonial from Family Tree DNA reads, “Juliet grew up not knowing anything about her heritage. All she really knew was that she was Caucasian.”⁹³ White identity here is presented as a placeholder, or a temporary identity used by people who just don’t know their specific ancestry yet. This DNA ancestry test replaced the basic identity of Caucasian with the truer identity of an ancestral nationality, in this case the testimonial mentioned both Greek and Scandinavian ethnicity were uncovered for the customer Juliet. Testimonials like this presented in advertising offer a transformation to white customers, a chance to move through genealogical disorientation and emerge on the other side of it with a unique personal family narrative rather than being part of a narrative about race, hierarchy, and white privilege.

Additionally, the genealogical disorientation management pages on DNA ancestry test websites speak to the other side of identity development, not where a weak sense of identity receives support in a new direction, but instead when a strong sense of identity is weakened. Amidst the “customer care” section of 23andMe’s website, they offer ambiguous reassurance concerning unexpected ancestry. Without any provided examples for why a customer might be unpleasantly surprised by their results, the websites offer ambiguous reassurance that, “different people feel differently about this kind of information...” and “...how this new information makes you feel will depend on your personal viewpoint.”⁹⁴ While one person’s source of ethnic pride may be another person’s historical enemy, these scenarios are left ambiguous. As discussed in the review of literature, some publicized scenarios of genealogical disorientation are when white

93. “FamilyTreeDNA Blog,” Gene by Gene, Ltd., accessed March 5, 2020, <https://blog.familytreedna.com>.

94. “What Unexpected Things Might I Learn From 23andMe?,” 23andMe, Inc., accessed March 2, 2020, <https://customercare.23andme.com/hc/en-us/articles/202907980-What-unexpected-things-might-I-learn-from-23andMe>.

supremacists learn that they have any amount of non-European ancestry.⁹⁵ The ambiguity of this section may suggest a desire on the part of companies to soothe the anxieties of racists that use their services, without making direct mention of ethnic tensions or racism at all. Including language of disappointment at all prepares for customers to experience disorientation, even if the company does suggest that they may simply “take more time to integrate this information into their sense of self”⁹⁶

4.4 Erasure of White Oppressors

The management of white identity that DNA ancestry tests endeavor to perform may start at visual and narrative representation and continue through curating the experience of surprise, but where DNA ancestry test specifically contribute the most to white identity is in rewriting history to ignore white oppressors. Site advertising accomplishes this in two main ways: by using euphemism in the testimonials of consumers of color, and through presenting all identities in the terms of migrant narratives equally without acknowledging key differences along the racial hierarchical structure. While DNA ancestry companies have been critiqued for removing nuance and uncertainty when presenting their scientific findings about a customer’s DNA, these steps to craft feel-good narratives out of genealogical archives and DNA strands actively downplay the evils committed in the name of maintaining the racial hierarchy for the benefit of white people.

95. Panofsky and Donovan, “Genetic ancestry testing among white nationalists,” 659.

96. “What Unexpected Things Might I Learn From 23andMe?,” 23andMe, Inc., accessed March 2, 2020, <https://customercare.23andme.com/hc/en-us/articles/202907980-What-unexpected-things-might-I-learn-from-23andMe>.

4.4.1 Euphemism for White Ancestors and Black Experiences

There are truths about the way the racial hierarchy has impacted families of color throughout American history and world history in the testimonials of Black customers, yet the euphemism employed in writing these narratives for site advertising are insufficient representations of oppression. One prominent example of euphemism is the term “brick wall,” which describes an obstacle in genealogical work that prevents the family tree from growing further. In testimonial example, a woman describes how “DNA testing, as my case suggests, can be critical to busting through the infamous 1870 brick walls for many African-American researchers.”⁹⁷ The choice of words suggests equality, as a brick wall is something that any person could potentially encounter on their path and as a passive object it does not discriminate. Yet the “brick wall” was built by someone to prevent the paths of specific people, white people built “brick walls” by destroying families and cultural connections through the slave trade and colonization. When genealogical searches are missing records for individuals, those record were either purposefully never recorded or later destroyed because the subject, usually a person of color, was considered not worthy of recording. When documents of genealogical significance detailing the lives of those at the top of the racial hierarchal structure are missing, those “brick walls” doe truly come into being as an accident, likely because documents were lost to storage mistakes made long ago. Holding each “brick wall” equally under an object euphemism erases the role that white supremacy has in the limited ways genealogists of color and specifically Black African American genealogists can learn about family history.

97. “Genetics just got personal,” 23andMe, Inc., accessed March 2, 2020, <https://www.23andme.com/stories>.

Beyond the “brick wall” phenomenon, DNA ancestry test websites work to remove the culpability of white ancestors in systems of oppression like slavery and colonization. One example of this is in the testimonials provided of when Black consumers specifically learn they have a white ancestor. Ancestry DNA offered an example of this narrative:

“[Jordan] was intrigued by the stories passed down through generations that spoke of a Caucasian ancestor in his family. His entire family was African American...[Jordan] reached out to a predicted fourth cousin online-and realized she was from a Caucasian family living in the same region of South Carolina where his mother’s family was originally from.”⁹⁸

The story ends by celebrating that the test user rediscovered a branch on his family tree, and that a union of oral history and scientific data revealed the truth and made the test user’s sense of identity stronger by opening “a pathway to the past”.

The framing of this story creates expectations about the userbase and the potential customer, highly centered around the value of whiteness and of portraying ahistorical racial harmony. The consumer presented in the testimonial is presented as admirable because he desires more information about whiteness and his connection to whiteness. His family is likewise admirable because they kept alive the true story of a white ancestor rather than allowing it to be twisted or forgotten. After Jordan reached out, the white woman fourth cousin is benevolent and becomes family with the black test user because she aids him in his quest for knowledge. That white ancestor is a treasure that Jordan uncovered rather than an actual person with agency in the narrative. And the setting is merely South Carolina in the past, where the Black family is supposedly originally from, even while the testimonial refers to them as African. The choice to

98. “Genetics just got personal,” 23andMe, Inc., accessed March 2, 2020, <https://www.23andme.com/stories>.

feature this story alludes to the possibility of a valuable ancestor and valuable family members that someone would otherwise not know, and invites the customer to consider what they're missing out on. They could be missing out this whole time on access to whiteness.

The white ancestor's role in American slavery in South Carolina is noticeably missing from the testimonial. If that ancestor were somehow not a slaveowner or beneficiary from the system of slavery, the testimonial would have every incentive to make that clear and contribute to a feel-good narrative of diversity. DNA ancestry testing entertainment discussed in the literature have demonstrated that when there's an abolitionist or a civil rights hero in a white person's lineage, they are worth some attention and direct comparisons. When the white ancestor revealed by these shows owns slaves, the show prefers to gloss over this rather than make their celebrity guest and/or their audience uncomfortable. The lack of context provided for this white ancestor indicates that it was not true love and marriage that led to their place on a black family tree, but instead it would be much more likely to have been a rape. The white descendent, characterized as a helpful cousin, now becomes the heiress to a slave fortune. Why would a black man want to connect to that side of his family, why would he want "a pathway to the past" when the past holds enslavement and rape? Why wouldn't the story highlight his African roots instead of his South Carolina roots? The company made the choice to feature this story in the frame of the individual sense of identity becoming more secure as a result of more ancestry knowledge. It's something more generalizable to white consumers, and it can reassure white consumers that Black consumers too are proud of their white ancestry, so they are allowed to be proud too.

4.4.2 Migrant Narrative as Normative Whiteness

In addition to removal of a narrative that frames white ancestors as slaveowners or colonizers, the DNA ancestry test website advertising offers consumers a new identity for their

ancestors, the migrant. Images like the one below hold migration paths as an important part of genetic information and the personal narrative, even the earliest migration paths that DNA can identify:

TRACE YOUR MATERNAL MIGRATION

Follow the path of your female ancestors

Use mtDNA to determine where your direct maternal ancestors came from, their locations in historic times and how they migrated throughout the world.

- ✓ Explore your direct maternal line and geographic origins
- ✓ Uncover your maternal heritage going back to Africa
- ✓ Trace your female ancestors' ancient migration paths

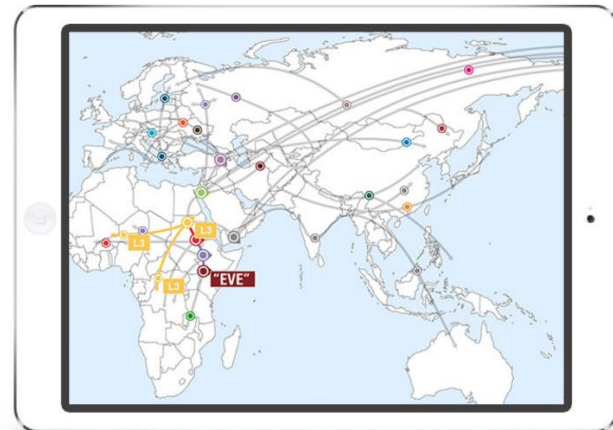


Figure 5. A tablet displays a blank white political map of Africa, Asia, Europe, and Australia overlaid with many multicolor dots and lines connecting some of them, one brown dot in Ethiopia is labelled “EVE” and there is text besides the map that reads: “Trace your maternal migration. Follow the path of your female ancestors. Use mtDNA to determine where your direct maternal ancestors came from, their location in historic times and how the migrated throughout the world. Explore your direct maternal line and geographic origins. Uncover your maternal heritage going back to Africa. Trace your female ancestors’ ancient migration paths.”⁹⁹

The characterization of Africa as the origin of DNA not only contradicts indigenous histories as detailed in the literature, but also replicates the message that all non-Africans are the inheritors of African DNA, which can characterize that DNA as less evolved than the DNA that has mutated and adapted to other climates and biomes geographically. Even recent migration, such as

99. “Explore your maternal ancestry with mtDNA,” Gene by Gene, Ltd., accessed March 5, 2020, <https://www.familytreedna.com/products/mt-dna>.

movement from Europe to America can integrate migrant identity into narratives of white ancestors. An example of such is pictured below:

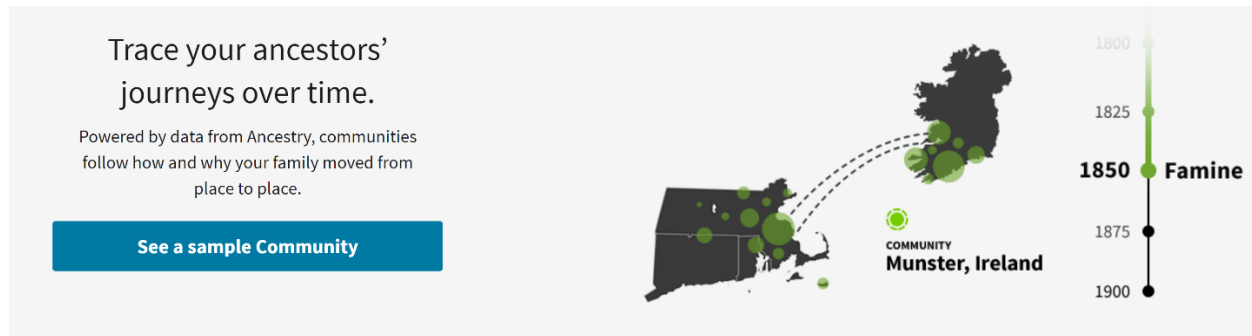


Figure 6. Two political maps, blank dark grey and dotted with green, show the borders of Ireland and the American states of Massachusetts, Connecticut, and Rhode Island. Lines between the maps connect green dots, which the key identifies as the ethnic community of Munster, Ireland. Another key shows a timeline, with 1850 highlighted in green and labelled “Famine.” The text associated with this caption reads “Trace your ancestors’ journeys over time. Powered by data from Ancestry, communities follow how and why your family moved from place to place.”

There is also a link to “See a sample Community.”¹⁰⁰

As the theory of normative whiteness suggests, rewriting white identity in America as the Ellis Island immigrant allows white Americans to distance themselves from the history of slavery and oppression and instead consider their own ancestors as marginalized. The site advertising for DNA ancestry companies doesn’t offer nuanced perspective on the differences in migrant experiences between people of color and white people, and instead the presentation as equal creates a narrative that glosses over hierarchy.

100. “Your DNA reveals more than ever before—from your origins to your family’s health,” Ancestry, accessed March 2, 2020, <https://www.ancestry.com/dna>.

4.5 Gender and Family Traditions

After DNA ancestry company advertising highlights what meaningful narratives there are in DNA as well as how consumers can interpret the information for their own identities, the companies further suggest what consumers can do with their new identities. It's important to note that the consumers that companies speak to most explicitly with advice on behaviors are female. The role for men to integrate their identities seemingly ends with the moment of self-discovery, but advertising depicts women going to greater lengths to bolster and protect their new sense of identity.

4.5.1 Awareness about Dilute Heritage

The first way in which a DNA company might suggest further action for women who now know their DNA ancestry is to make them aware of the existence of threats to their heritage. A passage from Ancestry DNA's website reads:

“Even though it helps define who you are, cultural heritage is not something you inevitably carry with you, like your DNA. Traditions must be consciously passed down and maintained to persist from one generation to the next. Immigration, assimilation into other cultures, marriages, and adoptions are just a few of the ways that family heritage can be diluted or lost. For instance, if your grandmother from Kenya married into an American family and chose to adopt their customs over her own, her descendants might not have a strong cultural connection to their African identity. In short, heritage can be lost.”¹⁰¹

The examples of situations where heritage can be lost are also situations where genes can be diluted. The onus for the loss of heritage is not placed on systemic racism and the destruction of marginalized ways of life, but instead on the individual woman who chooses to marry and live

101. “DNA Heritage,” Ancestry, accessed March 2, 2020, <https://www.ancestry.com/dna/lp/dna-heritage>.

outside of the geographic region where her family is from. Ancestry DNA presents assimilation as an individual choice that women make rather than an anti-immigration pressure to preserve the traditions of a dominant societal group. The hypothetical grandmother should have done more to protect the DNA she carries with her via her reproductive potential, and not allowed an outsider to steal a heritage that could belong to her descendants. The site reassures consumers after this warning that DNA testing can make up for the mistakes of one's ancestors in not keeping tradition alive, but these words of caution also carry modern application.

4.5.2 Giving Children Heritage

The modern application of advice to women about the outcomes of making personal choices that dilute heritage is an encouragement to pass down the right traditions through the family. The following graphic is featured next to a paragraph of text on the subject of tradition, which includes the advice to “Discover what’s important to you, so you can choose what to pass on to your children.”

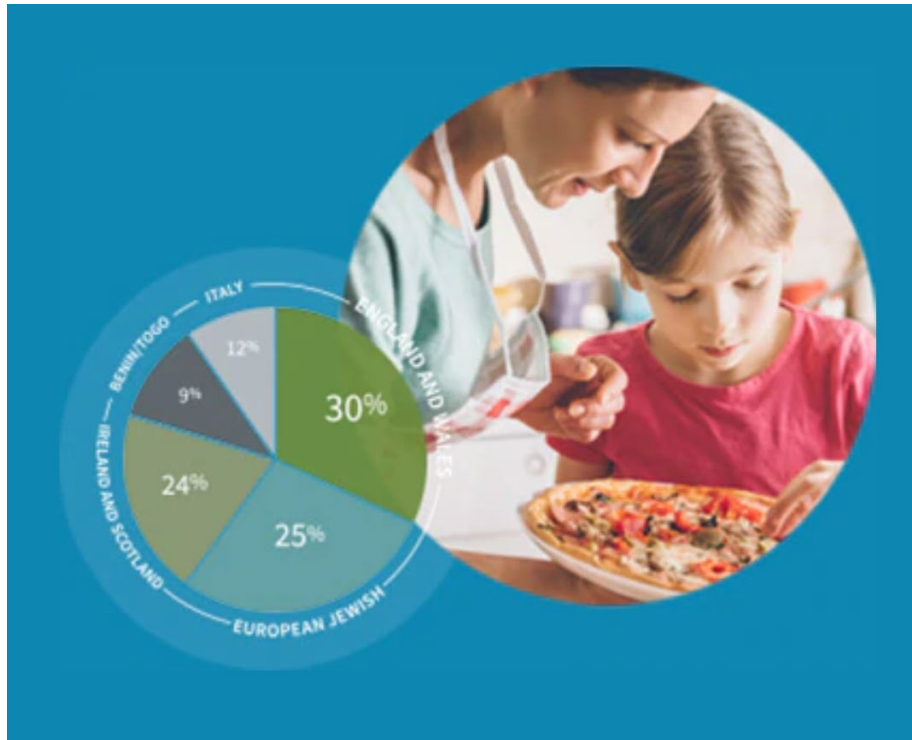


Figure 7. An image of a pale woman in an apron and a pale girl with straight hair making pizza together, a pie chart is shown next to the mother in the scene that has the percentages “30% England and Wales, 25% European Jewish, 24% Ireland and Scotland, 9% Benin/Togo, and 12% Italy”¹⁰²

Asking consumers, and again more specifically women to take over the role of caretaker of a child’s cultural upbringing echoes the gender roles of colonial history. Noticeably, the hypothetical consumer appears to have discovered that Italian heritage is important to her and chose to make an Italian dish with her daughter, rather than any cultural dishes from the other nationalities and ethnicities with which she has a larger amount of genetic material in common. The consumer is shown to have a degree of choice, in selecting the Italian heritage for honor, which from the American perspective can cast the white consumer’s ancestors in the role of marginalized

102. “DNA Heritage,” Ancestry, accessed March 2, 2020, <https://www.ancestry.com/dna/lp/dna-heritage>.

immigrant and not in the role of slaveowner or colonizer. Encouraging the practice of keeping ancestral traditions alive without acknowledgement for men's role in culture or the structure of racial hierarchy that makes certain white European traditions desirable in society serves to echo the racist history of identity rather than promote diversity and acceptance.

5 Discussion

The analysis in DNA ancestry test marketing narrative content has problematic implications for how core concepts of nation, race, and identity are presented to consumers. White identity faces a revision process through the individual interpretation of DNA ancestry test results, a revision that welcomes pseudoscientific beliefs about racial bioessentialism and fixed affinities while leaving no room for the historical truth of white European oppression and privilege. Echoes of traditional family roles for women as genealogists and responsible members of their genetic group can be observed in the marketing of these tests, which burdens woman with curating the genetic material of her children and the traditions that children learn. While the test marketing does indicate a potential to address genetic diversity responsibly in the context of history, that work is not done with care when the people designing products and product marketing create narratives that serve to bolster white and European identity. While DNA ancestry testing companies continue to claim multicultural values in marketing, this “economically profitable and morally harmless” diversity has been sequestered from differences that unsettle,” including the realities of historical racism and oppression.¹⁰³

The context of a Western free market capitalist economic system for DNA ancestry tests unfortunately suggests that these problematic elements will not be removed from marketing and test experience on its own. While these tests are sold mainly as sources of entertainment, the companies producing these DNA test narratives only have incentive to sell content that makes

103. Alana Lentin and Gavan Titley, *The Crises of Multiculturalism: Racism in a Neoliberal Age*, (London: Zed Books, 2011) 175.

consumers feel secure in their identities rather than promotes truth and transcultural understanding. And white European consumers in particular are seemingly the target audience, thus will receive the most narrative content that reassures this population of its important, unique, and exciting identity. While television programs may dramatize the potentially empowering experience of African Americans reconnecting with ancestral roots in Africa, when testing reference panels focus on gathering European samples to serve European customers the African American customer is left with a substandard quality of product that lacks reproducible accuracy. The identity of an African American consumer can be instead worn down when receiving different results from different companies, and instead they are left on their own with the pressure to choose one identity for use in society.¹⁰⁴ The testing industry in a capitalist system individualizes identity, so that rather than it being something that one cultivates in connection to a community of other people, instead the laborer works to pay a fee to be told the unchanging fact of their ancestry, that will follow them no matter the integration with other cultures and other peoples across geographic space. Writing in 2001 near the beginning of DNA ancestry test as an industry, anthropologist Jonathan Marks outlined the three reasons geneticists have failed the public when it comes to education on DNA:

“One, as cultural beings, geneticists have assimilated the same folk ideas as everyone else, and it is very hard to step out of their mindset. Two, this is largely humanistic knowledge, outside the formal training of an average geneticist...The third reason is a bit more insidious. When geneticists tell you that genetics is the solution to social problems, personality problems, global problems, they may have a conflict of interest. In other words, sometimes geneticists are willing to exploit cultural ideas to justify scientific ones.”¹⁰⁵

The conflict of interest in the DNA ancestry test industry is that it is a lucrative product enjoying an exponentially growing userbase. And yet on the horizon, at least one of the leading companies

104. Troy Duster, “Ancestry Testing and DNA: Uses, Limits, and Caveat Emptor,” 100.

105. Jonathan Marks, “Scientific and Folk Ideas About Heredity.”

has set its eyes on the goal of education rather than entertainment. Through a classroom program offered by LivingDNA, schoolchildren can all have their DNA tested and results returned as a batch to discuss as part of a lesson on human biology, global geography, history, and cultural difference. With the potential for DNA ancestry tests to shift their messaging from adults seeking hobby entertainment to children in school, any echoes of racial pseudoscience have the potential to be magnified and enter the public discourse even moreso than now.

Specifically, the way that DNA ancestry tests narratives are used presently by adult populations indicates that some parts of the marketing is very appealing to bolstering claims by white supremacy groups. In studying the forum posts of self-identified white supremacists, researchers Aaron Panofsky and Joan Donovan found that white nationalists in particular see DNA ancestry tests as “confirming and advancing core aspects of their ideology,” such as the existence of a 100% purely white European individual, both historically as part of the reference panel and in modern test results.¹⁰⁶ The tests are viewed as proof of racial bioessentialism or as they call it, racial realism, and present the opportunity to champion ethnic pride and ethnic separation as a euphemism for white pride and racial segregation. DNA ancestry tests have the ability to disavow these claims made about race in their marketing materials and website presence, and yet because of the capitalist contexts where white nationalists as a group may contribute significant amounts of funding to both research and in consumer purchases, it may not be soon that website users see any changes to the narratives in marketing material,

To continue research into the topic of consumer experiences of DNA ancestry tests, surveys of consumers would be a natural next step to determine what beliefs about nationality and race are present in individuals both before and after they interact with the DNA ancestry industry. While

106. Panofsky and Donovan, “Genetic ancestry testing among white nationalists,” 675.

the marketing is received favorably by white supremacy groups, messages of race and identity may not reach other adult hobbyists in the same capacity. The mere presence of the marketing elements alone cannot suggest the degree to which these messages are internalized, and that remains the biggest unanswered question of this research. With the prevalence of DNA ancestry tests in cultural awareness through America as well as Europe, it would be interesting to see an analysis of user generated comments on genealogy and identity in the context of social media has changed in the years since the technology first hit consumer markets.

DNA ancestry testing services are on in a unique position to change how humanity views itself as a species, and whether that is fragmented along the same lines as history or can work together with history and develop more connection than ever before. Greater deference to indigenous populations worldwide represents a beginning step toward using that position for the benefit of not only Western populations but global people. If the industry is aiming to have a consumer base of children who grow up with a company issued ethnic identity, much more care must be put into DNA narratives. When DNA companies promise consumers that “you’ll be amazed by the way your DNA relatives connect you to the world,” these services must forge those connections with increased commitment to both the truth and to correcting the mistakes of racial pseudoscience in the past.¹⁰⁷

107. “Ancestry + Traits Service,” Ancestry, accessed March 2, 2020, <https://www.23andme.com/dna-ancestry>.

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