GENETİK BİLİMİ VE KİMLİK
GENETICS AND IDENTITY

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ÖZET

Biyoloji ve kimlik arasındaki ilişkiyle ilgili akademik çalışmalar uzun zamandır süregelmektedir. Özellikle ırksal kategoriler, hem akademik çevrelerde, hem de akademi dışında insan gruplarının biyolojik çeşitliliğini anlamada önemli yer tutmuşlardır. Ancak, son yıllarda bilim dünyası kimlik kavramının sabit bir yapı olarak anlayan tutumunu terk etmiştir. Genetik bilgi de, bu çaba içerisinde sabit biyolojik kimliklerin geçerliliğinin çürütülmesinde önemli rol oynamıştır. Bu gelişmelere rağmen, akademi dışında, genelde populasyon genetiği çalışmalarının etnik gruplara özgü `genleri' araştırmakta olduğu düşünülmektedir. Bazı etnik gruplar genetik araştırmaları coğrafi köklerini, etnik kökenlerini ve hatta grup kimliklerini `bilimsel' olarak meşrulaştırmak için kullanmaktadırlar (örn. Amerikan yerlileri, Lemba, Hindistanlı dokunulmazlar ve Afrika kökenli Amerikalılar). Bu çalışmalar gerçekten de bilimsel olarak değişik grupların tarihlerini anlamamıza ciddi katkılar sağlayacaktır. Ancak, etnik merkezli ve hatta ırkçı diskurs aynı verileri çarpıtarak kendi gruplarına avantaj sağlayacak şekilde çarpıtılabilir. Bu yüzden moleküler antropoloji çalışmalarının daha derin ve

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geniş olarak anlaşılmasını destekleyecek adımların atılması önemlidir. Bunun sonucunda oluşacak diyalog, genetik bilginin politik olarak yanlış kullanılmasını engellemekle kalmayacak, aynı zamanda insanlık tarihinin ve çeşitliliğin anlaşılmasına önemli katkılarda bulunacaktır.

Anahtar Kelimeler: Genetik, Kimlik, Irk, Bioetik, Moleküler Antropoloji

ABSTRACT

The relationship between biology and identity is not a new area of academic inquiry. Racial categories, in particular, have set the framework for understanding human diversity both inside and outside of academia. In recent years, however, Western academics have taken an important role in the deconstruction of identity as a stable object of analysis. Contributing to this effort, genetic data have been utilized to problematize the notion of stable biological identities. Nevertheless, non-academic discourse has sometimes reproduced arguments, based on new genetic developments, which challenge the reflexive anti -essentialist identity that is produced in contemporary academia. For instance, population genetic studies are generally thought to show that certain `genes' are confined to particular ethnic groups. Indeed, several populations from different cultural backgrounds have already utilized genetic techniques to legitimize their origins, ethnicity and even group identity (e.g., indigenous American groups, Lemba, Indian `Untouchables', African Americans). While such studies will broaden our understanding of different population histories, ethnocentric or racist discourse can also represent these genetic data in a distorted way so as to support the claims of particular groups. For this reason, it will be

important to promote a more comprehensive and deeper understanding of molecular genetic studies. The resulting dialogue will not only prevent the potential political misuse of genetic data, but also contribute significantly to our understanding of human history and diversity.

Keywords: Genetics, Identity, Race, Bioethics, Molecular Anthropology

INTRODUCTİON

For many decades, the relationship between biology and identity has preoccupied scholars. Racial categories, in particular, have set the framework for understanding human diversity both inside and outside of academia. In recent years, however, Western academics have strongly argued against a biological basis of identity, and, in particular, against racial categories. Developments in the field of genetics have also facilitated the changing academic understanding of race from being a biological reality to a socially constructed concept.

However, as Brodwin (2002:1) noted, in the public sphere outside of academia, essentialist identities have been reinvented. For instance, certain groups have interpreted new genetic knowledge as strongly indicating that identity is an "inborn, natural and unalterable quality" (Brodwin 2002:1). Misinterpretations of these genetic data and the historical tendency of racist thinking have fostered a major debate over claims of identity on biological grounds. Thus, non-academic discourse has sometimes produced arguments that challenge the reflexive anti-essentialist stance on identity which is common in contemporary academia. However, it should be noted that genetic does reveal patterns in human biological diversity that have strong

links to social organization, migrations, living togetherness and kinship of human societies. In this regard, the social sciences have focused on recent developments in identity formation not only because they manifest a grandiose 'play' between political, historical and cultural factors, but also because they serve as a framework through which the social sciences can conceptualize cultural differences in complex and politically progressive way.

The Concept of Identity

Contemporary academic discourse defines the concept of identity in anti-essentialist terms. Individuals craft their identity through social discourse and, hence, identities have no fixed essence. Thus, before moving into the discussion of contemporary identity formation in the public sphere, it will be useful to explain the contemporary understanding of the concept of identity.

Althusser (1971:162) defines ideology as "the imaginary representation of the subjects' relationship to his or her real conditions of existence". Thus, as one of the most elaborated ideologies, identity is a fantasy of "the self as reflexively understood by the individual in terms of his or her biography" (Giddens 1991: 244). Accordingly, controlling identity directly reflects on time/space 'distanciation', that is, the ways in which social practices and institutions have become 'stretched' over larger or smaller spans of space and time. As a result, hegemonic discourse has a significant focus and influence on the process of identity formation, as a means to 'stretch its own existence' (Giddens 1991).

The ideological mechanism through which this control functions has taken many different shapes as the notion of identity within the hegemonic

discourse has been reconstructed, that is, redefined through continuous discursive power relationships. According to Foucault (1990), these power relationships are internal rather than external to a society, creating a structure 'without a constant center'.

> It seems to me that power must be understood in the first instance as the multiplicity of force relations immanent in the sphere in which they operate and which constitute their own organization; as the process which, through ceaseless struggles and confrontations, transforms, strengthens, or reverses them; as the support which these force relations find in one another, thus forming a chain or system, or on the contrary, the disjunctions and contradictions which isolate them from one another; and lastly, as the strategies in which they take effect, whose general design or institutional crystallization is embodied in the state apparatus, in the formulation of the law, in the various social hegemonies" (Foucault, 1990: 92-3).

Based on these ideas, one can view 'identity' as being an ideology, a tool for power, which is created through power relationships and strictly influenced by hegemonic discourse.

Identities, in contrast to their constant reproduction and change, claim integrity through various means. Identity formation requires a rationalization that affirms its legitimacy among 'other' identities. Furthermore, the formation of identities is strictly dependent on the perception of an 'Other,' which is made into the antithesis of 'Self'. The identification of 'Other' can be based on race, class, language, culture, ethnicity or any other perceivable difference. In general, individuals identify themselves through an inherently immutable perception of the dichotomy comprising 'Self' and 'Other.' Thus, the concept of identity is an ironic but rationalized fantasy of the immutability of ever-changing values.

In short, identity is the fantasy of 'Self' through which the individual can comprehend the 'Other'. Identity is a personal and private formation, although the 'Other' is not. Thus, through controlling the 'Other', hegemonic discourse can manipulate the identities of individuals. The process of defining the 'Other' has followed many different paths. Nevertheless, there is one common element in all forms of this process, namely, that they are always narrated as the eternal 'Other'. However, identity is the only illusion through which we can catch a glimpse of the great and ever-changing social structure, which we, as humankind have been building so tirelessly.

The Historical Development of 'The Other'

Humans have continuously defined and redefined the different characteristics of the 'Other' throughout history. However, the characteristics that have created the difference have changed dramatically through the course of history. Ancient Greeks considered themselves to be "the most elevated people of all because they emphasized the reason without excluding the passions, holding the two in appropriate balance" (Weitz 2003:19). The universalistic discourse of the Christian faith embraces the European world, with a superior ideological unity succeeding to 'define' Muslims as the 'enemy' (Weitz 2003:19). The idea of intrinsically bound populations came into being during the late Medieval period with the decline of central religious hegemony, and with the revitalization of the 'cult of Ancient Greece'. These historical developments contributed to the context in which national and racial identities flourished in Europe.

People have long been aware of the "great diversity of human life" (Weitz 2003:19). Through their encounters with different peoples, ancient

chroniclers "sought to define better the particularity---and the higher moral and cultural standing of their own people" (Weitz 2003:16). The ways in which these differences were perceived were also extremely diverse. For example, Herodotus gave detailed accounts of the Scythians, and contrasted their 'barbaric' customs with those of the 'civilized' Greeks, his own 'people'. However, his understanding of these differences was not racist. It mirrored in cultural terms the contemporary self-identity of the people living in Greek lands.

The idea of biological difference was not a prominent part of the hegemonic discourse in Europe before colonial conquests in distant lands. The discoveries of these new lands "revealed a world far more diverse than the Europeans had previously imagined" (Weitz 2003:21). The customs, language and ideas of the 'encountered' were so inherently different that the colonizers could not comprehend them. Moreover, colonies in the Americas, India, and other parts of the world created new social and cultural contexts in which Westerners had to interact with a new 'Other' on a daily basis. Thus, Westerners were forced to create a new 'self'.

The 19th century European identity was indeed a complex one and, like all other ideologies, it was an eclectic construct. It was rooted in ongoing seafaring and conquests of the 'exotic'. The idea of race was created through the interaction with the people of the 'new worlds,' and became so influential that, for the first time in history, slavery became associated with the people of one and only one skin color. The entire process was eventually coupled with scientific advances, the rise of commercial capitalism, and the formation of nation-states (Beaune 1991), all of which served as prominent rationales for racism (Kaiwar and Mazumdar 2003). These multifarious developments and interactions have defined the extraordinarily 'egocentric' modern Western identity.

The building blocs of the modernist identity, 'race', 'science', 'nation,' and numerous other concepts, overlapped with each other to such an extent that, within the context of the recently discovered human diversity, the lines between these categories became fluid and permeable. Moreover, these new ideas were perceived as one great ideology, modernism. In the modernist discourse, the concept of nation was virtually always coupled with race, and there was a 'natural' and, thus, 'scientific' explanation for this coupling (Kaiwar and Mazumdar 2003, Dhruvarajan and Vickers 2002).

The modernist ideology encompassed the ideas of the Enlightenment, which were glorified with romantic dreams about civilizing the world, building prosperous nations and improving the human race. These ideas not only worked together in constructing a holistic ideology, but also gave Europeans a significant materialistic, or, essentially military, advantage over the 'Other'. Thus, the great quest of "the race of the Aryan, who were endowed from the very beginning with the very qualities…to become the civilizers of the world" (Pictet 1877) began at a full pace.

Identity in the modernist sense was 'fixed' with 'romanticized scientific facts'. The modernist identity formation was almost always coupled with 'secular' categorization of human diversity, particularly embedded in racist thinking. The identities that were formed mainly within the context of religions were replaced by the identities defined by nature (Weitz 2003). In other words,

> [t]he concept of race is "quintessentially modern in that it does not explain difference in cosmological terms (for instance, the chosen people), but locates it in concrete (historical) time and space. Races have their origins, their migration routes, their points of settlement, and they leave a record that can be studied and evaluated according to

the best scientific principles (Kaiwar and Mazumbar 2003:263).

Thus, racial identities are defined and generally imposed as essentially "indelible, immutable and transgenerational" entities (Weitz 2003:21). Race, as the most 'fixed' form of identity, was destiny, a 'scientifically' determined, state-controlled fate with no apparent escape.

The narcissistic 'Self' of 'white men' and the idea of commercial capitalism, supported with the biologically determined categories defined within academia, carved the path to a new kind of slavery. Skin color determined one's social class in the most drastic way. Slavery of the 'black' was 'scientifically' rationalized, and made economically efficient and ideologically correct. The humiliation of the 'Other' to subhuman categories was the ultimate reaffirmation of the glory of the Western ideology for the entire 19th and most of the 20th centuries (Weitz 2003; Kaiwar and Mazumbar 2003).

Race and Genetics in Contemporary Academia

The general deconstruction of 'identity' as a stable concept in Western academia fundamentally challenged traditional racial categorizations, which were once thought to be the key to understand human diversity. The biological determinism of the last century---racial identity---has been strongly criticized by anthropologists and other social scientists in the last few decades (Kaiwar and Mazumdar 2003, Dhruvarajan and Vickers 2002; Olson 2003). Cultural studies, as well as current research on gender and sexuality, replaced the static racial categories with ever changing, culturally based, ethnicities (Hall and Gay 1996). Cultural categories and autonomous identity formations became the new ways in which academia understood human diversity.

Supporting this general trend, the expanding field of molecular anthropology has provided evidence that race is a cultural construction with little or no basis in genetics. Research with world populations showed that the entire human genome is virtually the same for all peoples, and that there is greater genetic variation within the human groups than there is between these groups (Barbujani et al. 1997, Marshall 1998; Olson 2003). In addition, geneticists claim that the phenotypic differences used for racial categorization, such as skin color, are found to be due to minor genotypic variation (Barbujani et al. 1997, Marshall 1998; Olson 2003). In short, anthropological geneticists view the use of racial distinctions to biologically categorize human groups as inappropriate for understanding modern human diversity (but see Burchard et al. 2003 supporting the usage racial categories in the biomedical, epidemiological literature).

These findings have encouraged individuals and institutions to act against racial categories. Craig Venter from Celera Genomics, the company that completed the bulk of the sequencing for the Human Genome Project, declared with a great triumph that "race is a social concept not a scientific one" (Wade 2001). The American Association of Physical Anthropology (AAPA) offered an official statement in 1996 that urged governments to cease using racial categories: "There is great genetic diversity within all human populations. Pure races, in the sense of genetically homogenous populations, do not exist in the human species today, nor is there any evidence that they have ever existed in the past" (http://www.physanth.org/positions/race.html). The American Anthropological Association soon followed with an official renouncement of racial categorization of humans, declaring:

> How people have been accepted and treated within the context of a given society or culture has a direct impact on how they perform in that society. The "racial" worldview was invented to assign some groups to perpetual low status, while others were permitted access to privilege, power, and wealth. The tragedy in the United States has been that the policies and practices stemming from this worldview succeeded all too well in constructing unequal populations among Europeans, Native Americans, and peoples of African descent. Given what we know about the capacity of normal humans to achieve and function within any culture, we conclude that present-day inequalities between so-called “racial” groups are not consequences of their biological inheritance but products of historical and contemporary social, economic, educational and political circumstances (http://www.aaanet.org/stmts/racepp.htm).

In short, the majority of contemporary Western academics reject racial categorization as a legitimate scientific explanation of human diversity. With few exceptions (e.g., medical studies; Satel 2001), most academic disciplines have reached a consensus perspective in which identity is viewed as a socially constructed, dynamic object of scholarly inquiry. However, outside of academia, the views of the ‘cultural avant-garde’ have not been reproduced to nearly the same degree.

Molecular Genetic Methods

We will now discuss the nature of the techniques used by geneticists before exploring the interpretations of the genetic information by different societies. DNA is a biological code. Recent methodological developments in genetics research, such as the polymerase chain reaction (PCR) and

automated sequencing, have enabled researchers to read this code and address crucial questions about the nature of human diversity. In particular, the non-recombining portion of the Y-chromosome (NRY) and the mitochondrial DNA (mtDNA) have been extensively utilized in molecular anthropology studies. The genetic data obtained from these genetic systems are statistically informative and meaningful only at the population level and within a historical or geographical context. Although very promising tools for understanding human history, and, thus, contemporary issues on human diversity, these data have certain limitations that should not be ignored.

Population genetics and molecular anthropology have indeed found considerable variation in humans, mostly due to different ancestral lineages being present within them (e.g., Cavalli-Sforza 2000). Although this variation is not extensive enough and too dispersed to support the notion of racial categories (subspecies), it does exist. Such molecular data can be used to create phylogenetic trees that reflect the genetic affinities of different peoples from around the world. Genetic information can also be utilized to gain new perspectives on certain questions about the past, such as the Indo-European expansion (Renfrew and Boyle 2000) or the peopling of the Americas (Torroni et al. 1993). However, certain problems arise when molecular anthropology is used to address questions about identity.

There are two major technical issues concerning the interpretation of molecular anthropological data that can lead to discrepancies between the academic views and opinions in the public sphere outside academia. First of all, molecular anthropology is meaningful on the group level and within a statistical context. That is to say, it is almost always impossible to determine a single individual's identity---or his/her affiliation with a certain group---by molecular analysis alone. In addition, the ancestral lineages that are traced

back through biological markers on the NRY and/or mtDNA represent only paternal or maternal lineages, respectively. For this reason, some of the molecular data may mislead the researchers about the biological affinities or history of an individual. For instance, an African-American male could have a Y-chromosome that possesses 'white' genetic markers if he had a great grandfather who was 'white' {e.g., Thomas Jefferson genealogy case; (Foster 1998)]. Therefore, despite the fact that genetic evidence can illuminate relationships between past and present populations and the nature of modern human diversity, the use of molecular data as fundamental proof of identity and/or history of certain individuals will possibly lead to political, cultural or historical inconsistencies.

The Role of Biology in Non-Academic Discourse

Thus far, most of what has been projected through the media about molecular anthropology is vaguely reminiscent of previous racial categorizations. This has occurred because the scientific nature of these molecular genetic data and their shortcomings are not yet widely understood by the public. In addition, the anti-essentialist understanding of identity has not been very influential outside of academia. To the contrary, developments in genetics are understood as a legitimate basis for categorizing human variation, to the dismay of the geneticists who have actually done the work. Some groups view genetic knowledge as having the power to determine their 'real' identity in a 'fundamental' way (Brodwin 2002).

The ideological frameworks in which 'fixed' identities have enjoyed a great power are very much alive in contemporary public discourse. Yet, the

multiple and hybrid identities and the political power associated with them are not well understood. The notion that nations are constructed by race, or that a people are fundamentally defined by ancestral lineages, creates a conceptual framework within which the genetic information can be used to determine who belongs to which group. However, this framework has important political ramifications for the groups being categorized in this manner.

Today, molecular anthropology generally interprets the meaning of genetic information within the framework of national and/or cultural boundaries. Unfortunately, this approach has the potential for invoking the notion that, within the non-expert discourse, nations or 'cultures' are defined biological entities. Unintentionally or not, such an approach encourages racist ideologies. In certain circles, for instance, the new genetic data are used as fundamental indicators of ethnicity and even of races that are legitimized on pseudoscientific grounds (see http://www.angeltowns.com/members/racialreal, Racial Reality Web Site). Consequently, a close interaction between academic and the public discourse is crucial to eliminate such misunderstandings.

Ownership of the genetic material, and the decision about who gets tested and by whom these tests are done, also constitute related and important issues. Perhaps because of the general anti-racist trend, today's governments avoid using genetic evidence as a fundamental indicator of group affiliation in determining group identity (except in some biomedical studies). From the viewpoint of the scientists who actually do the testing, there is a common belief that genetic studies are inherently 'scientific', thus, objective and non-political. Therefore, the main political players who are

utilizing genetic testing for claims of identity are the people who actually provide the genetic material.

Ironically, much of the discourse genetic testing, both academic and non-academic, involves groups that were historically oppressed on racist grounds. Many Jewish people, for instance, have participated in molecular anthropology studies that have revealed certain genetic attributes that are specific to Jewish people (see Hammer et al. 1997, Kleiman 2001). In an extreme use of genetic evidence, some Basque nationalists defend the historical claim *limpeaze de sangre* (cleanliness of the blood) of Basques as a part of their nationalistic myth (Kurlansky 1999), and support their claim using genetic studies (e.g., Wilson et al. 2001). As seen by these cases, the political implications of such genetic data are significant, and could be used to empower or disempower people.

Another issue that has been the center of intense debate is the question of 'authentic' identity. Ancestry, or 'blood quantum,' was understood as the main proof for 'authentic' identity by many groups, such as Native Americans (Brodwin 2001; Tallbear 2002). These facts raise some important questions: What is a person's 'authentic' identity? Is it determined by one's biological or cultural affinity? These questions are still being vigorously investigated. However, fears that genetic markers may be used to define one's 'authentic' identity and, thus, undermine the importance of common histories or cultural elements, are on the rise (Tallbear 2002). The political implications of using DNA markers for identification are considerable, and could, for example, affect indigenous American's claims as 'native' persons to the use of hunting and fishing grounds, the sharing of casino revenues, and access to federally supported health care.

This discussion should not be viewed as reflecting our opposition to genetic research or the production of knowledge about human biology and origins. On the contrary, we believe that molecular studies can illuminate these kinds of questions quite clearly. At the same time, the misinterpretation of genetic information can also create situations where certain groups may "lose their self-esteem, group cohesion and access to resources" (Brodwin 2002:2). To illustrate how genetics can be used to ascertain ancestry in the context of other information, we will describe several case examples in which DNA evidence has come to play a role in the reckoning of group identity.

Indigenous American Identity

As for all ethnic groups, American Indian identity is complex. Revitalization of American Indian identity in the last few decades has brought to light conflicting perspectives on what it means to be a Native American. Some of the relevant issues include the meaning of certain genetic lineages for interpretations of ancestry, the difference between the biological and cultural affinity of an individual, and the socio-economic impact of determining genetic ancestry for members of the American Indian community.

Today, as in the past, many federally registered Indian tribes require a certain blood quantum for tribal membership (Tallbear 2002). This assessment of genealogy has had implications for individual inclusion on federal lists that provide their membership with access to health care, economic assistance, and so forth. Knowing the genealogical relationships amongst tribal members has also been essential for properly interpreting allelic mapping data that are being used to identify genes involved in high risk for diabetes, heart disease and other diseases (Jones et al. 1991, Walston

1995, Price 1992, 1994). Therefore, while determining the biological background of native persons does not yield absolute evidence for their identity, it does provide a relatively accurate assessment of their ancestry, and has direct health and economic consequences for them.

Curiously, genetic testing is not a popular tool for testing new members to the tribe (Tallbear 2002). Some American Indian groups have participated in ancient and modern DNA studies (e.g., Torroni et al. 1993; Kaestle and Smith 2001; Rubicz et al. 2003; O'Rourke et al. 2000). However, the majority of Indian tribes have been reluctant to participate in genetic testing. At the same time, several companies now perform genetic testing to determine the extent of Native American ancestry for individual clients (e.g., Family Tree DNA, Genealogy by Genetics, Ltd). However, the NRY and mtDNA information obtained through the testing has its limits for determining the ancestry of these individuals. These limits are partly attributable to the fact that many people who have been genetically tested base their claim of native ancestry on oral histories and family genealogies, some of which are not especially accurate.

One interesting example that contrasts with this general trend involves the 'Black' Seminoles. From the 18th century forward, the slaves of the greater Florida Area found refuge amongst the Seminole tribes, and joined the resistance against the 'whites' (Glaberson 2001). During this conflict in the 1850s, known as the Seminole Wars, the tribe was eventually defeated or chased into isolated areas of Florida, with the majority of the Seminoles being forced to migrate to Oklahoma, where they were resettled on a reservation (Glaberson 2001). At that time, a treaty between the Seminole tribe (including both indigenous members and African American members) gave its members certain rights vis-a-vis the federal government. Here, a

person's biological ancestry was less important his cultural attributes in determining tribal membership, hence, the awarding of these rights.

However, in the year 2000, the Seminole Nation of Oklahoma accepted a controversial resolution. Over a discussion over $56 million in federal funds, Seminoles with 'native' ancestry (or blood) voted for a resolution, which stated that one-eighth Indian 'blood' is required for legitimate membership to the tribe (Seminole Nation of Oklahoma website, www.cowboy.net/native/seminole). This resolution not only contradicted the Treaty of 1866, but also threatened the membership of many 'black' Seminoles. As such, it represents a case in which the criterion for individual identity was shifted from a cultural to a biological one.

In another interesting case, some state lawmakers introduced a bill to the Vermont Legislature in February 2000 that would define American Indian identity. This piece of legislation (Vermont Bill H 809) proposed that the Commissioner of Health should determine the procedures and standards for determining Native American identity by DNA testing (http://www.leg.state.vt.us/docs/2000/bills/intro/H-809.htm). The testing was to be undertaken by a state institution, and would be conclusive in determining the identity of native persons in the state. However, the bill created intense debate among Vermont legislators, and ultimately failed to become a law, as the lawmakers rejected the idea that the presence of specific genetic markers was synonymous with a person's cultural identity.

Tallbear (2000) of the International Institute of Indigenous Resource Management explained the resistance to participating in genetic studies by discussing two beliefs among Indian tribes. First, he believes that there is an "increasingly widespread belief" among American Indians that believing in science and technology is anti-traditional (Tallbear 2000; page 4-5). The second concern relates to the power dynamics inherent in genetic studies.

American Indians have no historical basis for believing and trusting the scientific and political institutions in using their genetic material. The latter belief has been expressed in both the Mataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples (http://network.idrc.ca/en/ev-30143-201-1-DO_TOPIC.html) and the Declaration of Indigenous Peoples of the Western Hemisphere Regarding the Human Genome Diversity Project (http://www.ipcb.org/resolutions/htmls/dec_phx.html). These views of science and genetic testing clearly have relevance for efforts to understand Native American prehistory, and will complicate efforts to reconcile the cultural and biological histories of indigenous Americans.

The Lemba: 'Black' Jews of South Africa

A philosophically similar case involves the Lemba, a tribe living in South Africa and Zimbabwe. The Lemba are a Bantu speaking group that has lived among other Bantu speakers for many generations (Thomas et al. 2000). Their oral history mentions immigration to Africa from "Sena in the north by boat" (Thomas et al. 2000:674). According to this story, the initial group, which was entirely male, was Jewish by descent. The customs of these people also suggest a Jewish link, as they do not eat pork, circumcise their males and maintain one day a week as holy day. Their traditions and oral history are exceptional compared to those of their geographical neighbors, and has remained puzzling to researchers working in this area.

With the question of Jewish ancestry in mind, Thomas et al. (2000) undertook a genetic study of Lemba Y chromosomes from over a hundred males from different clans. Their results showed a Semitic origin for most of the Lemba Y chromosomes, in contrast to the paternal haplotypes of the Bantu speakers from the neighboring groups, which showed strong African

origins. In addition, this study showed that many of the Lemba Y chromosomes contained the Cohen Modal Haplotype (CHM), a set of linked mutations suggested as being a signature for Jewish ancestry, with these haplotypes being exceptionally common in the Buba clan, which, according to their oral tradition, is the eldest among the other eleven clans. The authors concluded from their study that:

> [t]he genetic evidence revealed in this study is consistent with both a Lemba history involving an origin in a Jewish population outside Africa and male-mediated gene flow from other Semitic immigrants (both of these populations could have formed founding groups for at least some of the Lemba clans) and with admixture with Bantu neighbors; all three groups are likely to have been contributors to the Lemba gene pool, and there is no need to present an Arab versus a Judaic contribution to that gene pool, since contributions from both are likely to have occurred. The CMH present in the Lemba could, however, have an exclusively Judaic origin (Thomas et al 2000:12).

How this information will be utilized by the Lemba, and by the rest of the world, to construct Lemba identity remains unanswered. Will it be beneficial to the Lemba? Does it provide legitimate grounds for them to request immigration to Israel? What if the genetic research suggested the opposite result, that the Lemba have no biological connection with Semitic or Jewish peoples? To date, the political responses to the new genetic information have been minor. However, these data have helped to clarify the previous misunderstood aspects of Lemba culture, and provided new insights into the extent of contact between geographically disparate peoples. This case also constitutes an excellent context for bioethical and

anthropological discourse to discuss the relationship between identity and biology.

Caste System in India

The caste system in India has recently been the focus of an interesting debate about the relationship between genetics and identity in that country. For centuries, India has preserved a hierarchical social structure that divides its society into four main castes, namely, the Brahmins, Kshatriyas, Vaishyas and Shudras. These groups have traditionally been endogenous, with movement between the castes being extremely rare. The Untouchables (Dalit, Achut and Harijan) are not categorized as a caste, since they are considered the lowest segment of society and too 'dirty' to be included in them.

The 2001 World Conference on Racism witnessed a heated discussion between the Indian government and representatives of the Untouchables. These groups argued that the caste system is inherently racist, and, thus, should be discussed at the conference. The Indian government rejected this claim, putting forward the argument that the caste system is a cultural construction and not a form of racism. Ultimately, the Indian government succeeded in preventing further discussion on race at the conference.

In contrast to Indian government's claims, a recent genetic study found evidence that there are genetic differences, on the population level, between lower and upper castes (Bamshad et al. 2001). Members of higher castes are genetically more similar to Europeans (West Eurasians), while members of the lower castes show stronger affinities with East Asians (Bamshad et al. 2001). Some regard this information as evidence for inherent racism in the caste system. However, the Untouchables did not traditionally define

themselves as belong to racial groups. In addition, the biological markers that discriminate between Europeans and Asian lineages are strictly about genetic ancestry, not race or caste. Thus, the question whether a historically oppressed group such as the Untouchables should be considered a 'racial group' remains to be fully addressed.

Conclusion

For centuries, biological attributes and their relationship to ancestry (e.g., skin color) have been important criteria for determining identity. Racial categories have served as the main way of categorizing human diversity. In the last several decades, however, this view of human variation in Western academia has been transformed into an anti-essentialist, i.e., anti-racist discourse. The result has been the general rejection of identity as a fixed concept, and the enthusiastic deconstruction of the concept of race.

Outside of academia, however, the development of anti-racist arguments is not wholly understood. The results of modern genetics research, in particular, have been understood in some quarters as new way of fundamentally determining a person's identity. This notion raises interesting questions about how and by whom the genetic data should be utilized. There are multiple stances among different cultures about the use and interpretation of the genetic information. Some groups, such as Native Americans, show a considerable reluctance to get involved in genetic studies, whereas members of the Lemba tribe are eager to participate in them. Thus, in the non-academic world, there is no clear consensus about the value and utility of genetic studies.

Brodwin (2002:4) criticizes that genetics "acquires the general cachet of science as the ultimate guarantor of truth. But second, people regard genes

as more stable over time than more putatively accidental aspects of identity (such as nationality, citizenship, religion, etc)." He further asks the question: "are people being seduced by the promise of a pure, but fictive genealogy?" Such arguments are troubling for three reasons. First, they assume that people immediately and uncritically favors a "pure" genealogy? Second, they reduce the idea of identity to singular categories, such as race, nation, etc, all of which were essentially interrelated. Doing these, they not only misrepresent the concept of identity, they also undermine the value of actual scientific knowledge.

Genetic code is indeed powerful for ancestry research because of two related factors. First, the genetic code is an extremely useful and so far, the most accurate tool to understand biological population histories. Of course, studies on mtDNA and NRY data do not have the statistical power to determine immediate group identities and the complex nature of human interactions throughout history has generated a great cultural and biological diversity that is generally impossible to fully comprehend by any single method or with any single genetic system. However, this does not change the fact that genetics give invaluable insights into ancestries, migrations, kinship relationships, and social organizations that define and give rise to the great diversity of our species.

Another basic concern is the manner in which identities are formed or created. Before discussing this, it is important to mention again that the genetic code by itself is not meaningful. It gains its power in defining identities only within the context of ancestry, kinship and population histories. This is an important issue in light of the expanded use of genetics for determining ancestry and disease risk, among other applications.

There is a great need for the involvement of anthropologists, social scientists and geneticists in such discussions of genetics and identity. Azoulay (2003:120) has asserted that "the umbilical cord of racial thinking has not been severed from the project of genetic research, and the subtle racial inflection contained within genetic research harbors political implications for questions that are sociobiological in orientation." While not in fully agreement with this view, we do think that Azoulay's statement underlines the potential misuses of genetic information. On the other hand, Brodwin (2002:8) suggests that, "the current debates over genetically-based identity claims…challenge the reflexive anti-essentialism of contemporary anthropology. Yet, they also re-animate the historic mission of our discipline: to conceptualize cultural difference in precise and politically progressive ways." The interplay between biology, genealogy and culture in defining identities in a dynamic political context sets the stage for a productive and progressive discussion of these issues, complete refusal of scientific knowledge does not.

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