Anthropology, race, and the dilemmas of identity in the age of genomics

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Given its current preeminence, the "new genetics" serves as a source for creating identities among social and even national groups. Genetic narratives interact with historical and social narratives; what is extremely *new* (genomics) impacts, interacts with, and in many cases chafes against what is *old* (race and typologies). This article analyzes the debates among biologists, social scientists, social movements, and other actors regarding the interpretation of genetic data from studies conducted in Brazil. The findings and implications of this research (known as "Molecular Portrait of Brazil") go beyond the academy, serving as a battleground that ranges from activists from Brazil's black movement to even members of far-right European groups, for example. A contextualized analysis of these debates proves helpful in better understanding the complex interactions between anthropology, genetics, and society in today's world.

KEYWORDS: genetics; race; black movement; far right; social thought; ethnicity.

Ricardo Ventura Santos
Escola Nacional de Saúde Pública/Fiocruz
Rua Leopoldo Bulhões 1480
21041-210 Rio de Janeiro – RJ – Brasil
santos@ensp.fiocruz.br

Marcos Chor Maio
Casa de Oswaldo Cruz/Fiocruz
Avenida Brasil, 4036
21040-361 Rio de Janeiro – RJ – Brasil
maio@coc.fiocruz.br

Introduction

It has been noted by many authors that the 'new genetics' (or genomics) is having a huge impact on the most diverse areas of the contemporary world, creating a technical and cultural revolution involving genes that is changing technologies, institutions, practices, and ideologies (Goodman et al., 2003; Haraway, 1997; Lippman, 1991; Rabinow, 1992; Santos and Maio, 2004). The knowledge and technologies derived from the new genetics do not just lend new dimensions to the biological, cultural, and social *loci* in the near surrounds of individuals; they also reshape macro-social, historical, and political relationships of a far broader scale. Anthropologist Paul Brodwin (2002) is categorical in his views on the relationships between the development of genetic technologies, society, and the construction of social identities in the contemporary world. As genetics earns greater prestige, historically recognized standards of identity may gain further legitimacy or be overruled by the results of DNA sequencing, or there might emerge new propositions that had not previously been socially acknowledged.

This is just such the state of affairs in the current-day relationship between race and genomics. In his book *Against Race*, Paul Gilroy states that anybody who wishes to consider the elements that have influenced what he calls the "crisis for raciology" should pay special attention to genomics. As he puts it, "[the] distance [of genomics] from the older versions of race-thinking that were produced in the eighteenth and nineteenth centuries underlines that the meaning of racial difference is itself being changed, as the relationship between human beings and nature is reconstructed by the impact of the DNA revolution and of the technological developments that have energized it" (Gilroy 2000, pp. 14-5; also see 1998).

In advocating a "deliberate and self-conscious renunciation" of race as a method for categorizing and dividing humanity (p. 17), Gilroy stresses that the biotechnology revolution makes it necessary for us to alter our understanding of concepts like race, species, embodiment, and human specificity. In other words, it requires us to reconceptualize the relationship between ourselves, our species, our environment, and our notion of life: "We need to ask, for example, whether there should be any place in this new paradigm of life for the idea of specifically racial differences" (p. 20; emphasis from the original).

Underlining the "utopian tone" of his argument (p. 7), Gilroy recognizes that his radical 'anti-race' posture may compromise or hamper (or even betray) those groups whose legitimate and even democratic claims rest upon forms of identity that have been built

up at great cost, based on categories imposed by their oppressors (p. 52). Race and its byproducts constitute one such set of categories. As Gilroy sees it, to abandon 'race' means to sever a longstanding historical chain by breaking one link: "On the one hand, the beneficiaries of racial hierarchy do not want to give up their privileges. On the other hand, people who have been subordinated by race-thinking and its distinctive social structures […] have for centuries employed the concepts and categories of their rulers, owners, and persecutors to resist the destiny that 'race' has allocated to them" (2000, p. 12).

What we intend to discuss in this article is precisely this 'articulation' between beneficiaries and subordinates, to use Gilroy's terms, along with the role of genomics in destabilizing racial thinking. To this end, we will examine a case study that explores the prominent role of the new genetics in dealing with a particular set of contemporary sociopolitical issues, notably the relationships between race, biological diversity, and identity construction. We will take as our case study research into the genetic traits of the Brazilian population, based on analyses of mitochondrial DNA, the Y chromosome, and nuclear DNA; we will also look at how this research has been received. The research in question consists of a series of studies that we will call the "Molecular Portrait of Brazil," coordinated by geneticist Sérgio Pena at the Universidade Federal de Minas Gerais (UFMG). Their findings have been published in Brazilian popular science magazines like *Ciência Hoje* and in specialized periodicals like the *American Journal of Human Genetics* and *Proceedings of the National Academy of Sciences of the United States of America*, as of 2000. Not only have these studies had an impact on academic circles, but they have also received considerable attention in the national and foreign press, fueling heated discussions among specialists and provoking comments by key players in social movements.

The "Molecular Portrait of Brazil" has been received enthusiastically in many circles (see references in Santos and Maio, 2004). Some people consider it a conclusive demonstration of genetics' potential in reconstructing the biological history of the Brazilian people. Journalist Elio Gaspari called the work a "phenomenal article, [...] a veritable lesson, a source of pride for Brazilian science." He also wrote that "it is the scientific proof of what Gilberto Freyre set out in sociological terms," referring to the magnitude of miscegenation in Brazil. "There are more people [in Brazil] with one foot in the kitchen than with both in the drawing room" (Gaspari, 2000), an expression that was even used by former president Fernando Henrique Cardoso during his mid-1990s campaign.

However, as black rights activist Athayde Motta sees it, this research by geneticists ("using high technology") provides the myth

of racial democracy in Brazil with a "simulacrum of scientific support." Further, the findings could open the doors for an "almost infinite potential for manipulation," including the possibility of "bringing new blood to the dying myth of racial democracy" (Motta, 2000a, b; 2002) or even engendering "a pro-racial democracy campaign […], a political and ideological discourse whose prime function is to maintain the state of racial inequalities in Brazil (Motta, 2003).

Another no less critical assessment of the work by the Brazilian geneticists came from a far right-wing, neo-Nazi group called Legion Europa, based in Europe and the USA. One M.X. Rienzi, author of countless texts on the group's website,[1] wrote that "the authors[the UFMG researchers], in the most shameless, subjective, and unscientific manner, openly display their political views on the subject of race," adding that "it is time to stop to deform natural realities to match political ideologies, and instead accept the racial realities which exist and deal with them as best we can."

As these reactions clearly demonstrate, the work by the Brazilian geneticists has received such attention and had such an impact that at one point there appears to have arisen a curious 'proximity' between a black rights activist and a member of a far right-wing group. However different their political leanings and proposals, both criticize the "Molecular Portrait of Brazil," largely accusing it of using science to produce a "ideological and political discourse" whose consequences run counter to their respective world views.

Taking these contents and reactions as our backdrop, there are a number of questions we plan to address in this paper. First, what has been the role of the new genetics in this apparent 'proximity', and how did it come about? Also, how are essentialism, racism, racialism, and identity formation expressed in these criticisms? How do politics and science intermingle in these discussions, whose boundaries are clearly not restricted to the physical space of the molecular biology laboratory? Using contrast as an analytical lens, we intend to make a meticulous reading of the positions taken by segments of society that are so apparently disparate in ideological terms, so as better to understand some of the relationships between anthropological and genetic themes in the contemporary world, focusing on the issues of race, race relations, and national and international sociopolitical projects. We are interested in exploring to what extent emerging genetic knowledge may hold sway in influencing and even transforming notions of social coherence and identities, and how organized groups are responding to this.

The diversity of the Brazilian people from the perspective of genetics

In an influential work produced in the 1960s, geneticists Francisco M. Salzano and Newton Freire-Maia stated that the Brazilian people presented "an unrivalled opportunity for the study of some of the most fascinating and complex problems" (1967, p. 1). They noted that "Brazilian populations are generally characterized by great genetic heterogeneity. [...] The heterogeneity derives from the contribution made by their formative racial groups. [...] Our populations are thus excellent material for a series of studies on intra- and inter-ethnic comparisons, as well as on the effects of miscegenation" (Salzano and Freyre-Maia, 1967, p. 157). In the 1960s and 1970s, many studies were made into Brazil's "racial mix" (see Sans, 2000). They were based on analyses of classic genetic markers, like the rhesus factor, Diego blood group systems, and gamma serum protein (gamma-globulins).

It is within this context of the history of genetics in Brazil that the set of research we call the "Molecular Portrait of Brazil" finds its place. One might say it is the latest chapter in a major line of investigation into human genetics that flourished in Brazil in the second half of the 20th century. Yet even more so, the research by Sérgio Pena and his collaborators, along with other genetic studies (see Salzano and Bortolini, 2002; Callegari-Jacques et al., 2003), both innovates and broadens analytical potential by using a new battery of techniques sourced from molecular biology. By sequencing portions of mtDNA and the Y chromosome, geneticists sought to map out a comparative panorama of the geographical distribution and patterns of the Brazilian population's matrilineal and patrilineal ancestry. In line with the considerable literature on the genetics of Brazilian populations (including a current of thought that considers Brazilians "unparalleled and fascinating" due to their high degree of miscegenation), the aim was to unlock the history of the formation of the Brazilian people in biological terms, paying special attention to the social and demographic reality of the country in terms of miscegenation.

The first article from the "Molecular Portrait of Brazil" series came out in Portuguese in 2000 (Pena et al.) in the monthly science magazine C*iência Hoje*, published by the Sociedade Brasileira para o Progresso da Ciência (SBPC). Two directly related articles containing a detailed presentation of the findings for the scientific community were published in the *American Journal of Human Genetics* (Alves-Silva et al., 2000; Carvalho-Silva et al., 2001) while another came out more recently in the *Proceedings of the National Academy of Sciences of the United States*, or PNAS (Parra et al., 2003).

In the investigation into Y chromosome DNA polymorphisms, which involved some 250 men from different parts of the country who deemed themselves 'white', the overwhelming majority of the markers identified were of European origin, with a very low percentage of sub-Saharan African markers and none that were Amerindian (Carvalho-Silva et al., 2001). Meanwhile, the results of the mitochondrial DNA analyses of the same group indicated a more complex picture, with the sample displaying 33% Amerindian and 28% African markers, i.e., a surprisingly high Amerindian and African matrilineal ancestry among the white Brazilian men under study (Alves-Silva et al., 2000).

According to the authors of the "Molecular Portrait of Brazil," the pattern of differential reproduction detected in the genome analyses (with patrilineal ancestry checked via the Y chromosome, found to be of a predominantly European origin, and matrilineal ancestry checked via the mitochondrial DNA, found to be of an overwhelmingly African and Amerindian origin) makes absolute sense when viewed in the light of the history of colonization in Brazil as of the 16th century: "the first Portuguese immigrants did not bring their women, and historical records indicate that they soon began a process of miscegenation with indigenous women. With the arrival of slaves beginning in the latter half of the 16th century, miscegenation extended to African women" (Pena et al., 2000, p. 25). The genetic research findings corroborate the miscegenated nature of the sample of (self-classified) white Brazilians, since the majority (around 60%) of the matrilineal lineages were of Amerindian or African origin.

While the two articles published in the *American Journal of Human Genetics* focused primarily on genetic-molecular and phylogeographical aspects, the text written for the purpose of science communication in *Ciência Hoje* made no bones about the social and political implications in the fight against racism in Brazil that could be drawn from the research:

> "Brazil is certainly not a 'racial democracy' [...]. It might be naïve on our part, but we would like to believe that if the many white Brazilians who have Amerindian and African mitochondrial DNA became aware of this, they would be more inclined to value the exuberant genetic diversity of our people, and perhaps build a more just and harmonious society in the 21st century" (Pena et al., 2000, p. 25).[2]

In January 2003, the geneticists published another paper, entitled "Color and genomic ancestry in Brazilians." Unlike the previous studies, which involved individuals from different parts of Brazil, the research by Parra et al. (2003) was carried out in one specific rural community (Queixadinha), in Vale de Jequitinhonha,

northern Minas Gerais state. First, a group of approximately 170 people were classed by two researchers as 'white', 'intermediate', or 'black' according to morphological criteria (which the authors called a "clinical assessment"). They took into account features such as skin pigmentation, hair color and texture, and shape of nose and lips. Biological material (blood samples) was then collected from each individual and analyses were performed on a battery of ancestry informative markers (AIMs) gleaned from their nuclear DNA. For comparative purposes, samples were also analyzed from three other groups (Africans from São Tomé, indigenous Amazonian peoples, and Portuguese).

The main finding of the study by Parra et al. (2003) may well have been that there was no direct relationship between morphological and biological classifications in the sample from Queixadinha, in which there was a great deal of overlapping and it proved hard to distinguish the genomic features of the individuals morphologically classed as 'white', 'intermediate', and 'black'. Yet comparison of the genetic characteristics of the other three groups (Africans from São Tomé, indigenous peoples from the Amazon, and Portuguese) showed some marked differences. The authors concluded that: "Our data suggest that in Brazil, at an individual level, color, as determined by physical evaluation, is a poor predictor of genomic African ancestry, estimated by molecular markers" (Parra et al., 2003, p. 177).

Reception and criticism of the genome studies

Athayde Motta and the view of the Black Movement

In a prior work (Santos and Maio, 2004), we described and contextualized black rights activist Athayde Motta's criticisms of the research by Sérgio Pena and his collaborators. We review some of the key points below.

Motta has written at least four texts that are highly critical of the geneticists' work, published in *Afirma: Revista Negra Online* (Motta 2000a, b; 2002; 2003). The key aspects emphasized are: similarities between the "Molecular Portrait of Brazil" and interpretations of Brazilian history, culture, and society that are regarded as erroneous and outdated; a questioning of the importance of genetics in defining collective identities; and the impacts the genetic findings could have on the implementation of public policy designed to fight racism in Brazil.

In his text "Genética para as massas" [Genetics for the masses], Motta (2000a) disagrees that there are parallels between the interpretations of the geneticists and what he calls other portraits of Brazil's colonial past. The author is referring to the writings of Gilberto Freyre:

> "[The "Molecular Portrait of Brazil"] is not far from the colonial portrait of a country initially formed by indigenous populations and white men and later by indigenous and black populations as well as more white men than white women. Considering that it was the Portuguese who had the habit of brutalizing indigenous and black slave women, the research confirms genetically what was already known by anyone with a modicum of critical sense about Brazil".

In his argument, Motta also seeks to undermine the importance of genetic evidence in defining identities and setting patterns of sociability in Brazil:

> "The information that 60% of the white Brazilian population is of black and Indian descent might provide some fuel for those who like to say that there are no whites in Brazil, but genetics is not what is going to make this possible. The race and cultural relations in our society are such that a definition of what it is to be white is far from being an issue of genetics or biology" (2000a).

Motta's most pointed criticisms of the "Molecular Portrait of Brazil" concern the implications this genetic data may have for public policy. While admitting that "the almost unlimited potential for manipulation [...] is the fault neither of the research nor of the researchers" (2000a), and that the geneticists' work uses "high technology and good intentions to produce a genetic map of a sample of the white Brazilian population" (2000b), he states that the study provides a "simulacrum of scientific support" for the "myth of racial democracy."

Let us now look into some of the key points of Motta's criticisms. First, they are based on the text published in *Ciência Hoje*—which pays scant attention to technical issues—and contain no reference to those that came out in specialized periodicals (*American Journal of Human Genetics* and *Proceedings of the National Academy of Sciences*). Secondly, Motta highlights what he considers to be an alliance between the geneticists, on the one hand, and conservative ways of "explaining Brazil," on the other, especially through the ideas of Gilberto Freyre. Thirdly, he questions how relevant biological knowledge is in 'revealing' historical and social realities in Brazil (i.e., genetics has demonstrated nothing that history, anthropology, and sociology have not already shown),[3] as well as questioning its role in public policy-making.

M.X. Rienzi and the outlook of the far right

Legion Europa is a far-right neo-Nazi group whose website contains information about its convictions and political goals, as well as many texts of a doctrinal nature (see Footnote 1). It is

impossible to pin them down geographically (i.e., there is no postal address), although from the topics addressed, it can be deduced that they are based in Europe or the US. The website presents a number of analytical essays about research into human genetics, most authored by M.X. Rienzi (a pseudonym), identified as a biologist from New England. One of these discusses the work of the Brazilian geneticists.

Right at the introduction to Legion Europa comes the answer to a question: "Who Are We?" Their line of argument is that their goal is to reverse the ethnic and sociopolitical weakening of 'Euros', which has supposedly been triggered by the influence of other 'races' deemed inferior and parasitic. It reads:

> "We are Europeans (Euros), or people of various Euro-ethnic descent who partake of a common bioculture/biohistory traditionally known as Western Civilization. Our race is the soil from which this garden bloomed. We are the bees who gather the best of each flower to make the sweetest honey, but we shall also sting mightily people with a common bioculture/biohistory. It is through the betrayal of our people that the OTHER, those not of our race–outgroups–have been enabled to prosper and attain such an influence in world events that our very existence is now threatened by them."

The website is permeated by a discourse based on assumptions of Aryan racial superiority, militarism (there are numerous references to the Spartans, for instance), anti-Semitism (along with outcries against Arabs and Indians), and a valuing of "German National Socialism" (Hitler Youth and the SS as model corporate structures), among other aspects.

Another feature of Legion Europa's discourse is the degree to which it prizes scientific and technical knowledge in the field of biology and especially genetics. This is what one notes when one reads the "Ethnoracial Bill of Rights" (an obvious parallel with the UN's "Declaration of Human Rights"), which contains repeated references to the power of biological technologies to promote the renewal of standards of "homogeneity and coherence" for 'Euros':

> "Every ethnoracial group, including all peoples of European descent have the right to survive. […] Every ethnoracial group has the right to establish whatever degree of biological and cultural ethnoracial homogeneity in the lands in which they live, including the right to establish fully homogenous nation-states, excluding other ethnoracial groups. […] The ethnoracial group is an extended kin-group, an extended family. Just as a person must have the right to promote the interests of their family, so must they have the right to promote the interests of their ethnoracial group. There must be no laws that prevent

> people from fully promoting their ethnoracial interests. There must be full freedom of speech and assembly, full freedom to form political parties, full freedom to promote ethnoracial homogeneity and separatism, and full freedom to oppose globalism, ethnoracially variant immigration, and any other infringement of ethnoracial rights. […] Ethnoracial groups must be allowed to pursue whatever reproductive strategies they wish, including endogamy, eugenics, and human cloning. […] The pursuit of ethnoracial interests must be accorded the highest priority and dignity. All must be allowed to promote the best for their people, as long as such pursuit does not unfairly infringe upon the ethnoracial rights of other groups."

Rienzi's essay on the research of Brazilian geneticists, published in PNAS in 2003, should be read within the context of this extremist racism. Before we look at the criticisms per se, we might attempt to infer what led Legion Europa to take an interest in the Brazilian researchers' work. Aside from the obvious interest of the topic itself (race and the genetics of peoples), the periodical in which the article appeared is considered one of the most influential and prestigious in the world.[4] Published twice monthly, this journal generally considers for publication papers either written or recommended by members of the US's National Academy of Sciences.[5] This fact of publication alone would have afforded the text by Parra et al. special visibility, but it was also selected by the PNAS press office to be included in its tipsheet, which is circulated to the press in advance of each new issue so that journalists can prepare their reviews before the journal is published. Of the 40 or so articles included in the issue in question, only three others were selected for inclusion in this press brief, which assured the genetic research ample publicity not only in Brazil but all over the world.

Rienzi's criticism of the Queixadinha study takes up around four pages; it is lengthy and detailed. Its title is a question: "Scientists Prove Race Does Not Exist?" As the critic from Legion Europa sees it, the work by the Brazilian geneticists is an "ideological tool in the guise of science."

Rienzi starts off his comments by stating that the work by the Brazilian researchers circulated widely across the Internet when it was published. His concern is that people may "believe" that the results of the Brazilian study could be extrapolated into other contexts. To make his point, he mentions a part of the PNAS publicity material in which it states that the study shows that no clear correlation is found in Brazil between physical and racial traits and genetic markers of origin and ancestry. As Rienzi sees it, according to those who deny race, the finding by the Brazilians "proves" that the concept of race is unfounded from a biological standpoint. Quoting from an interview given by Sérgio Pena at

the time the work was being published, in which he states that the study's conclusions are applicable only to Brazil and "should not be naïvely extrapolated to other countries," Rienzi concludes by stating that the information disseminated to the general public was that the results obtained in the Brazilian study would be universally applicable.

After some rather moderate introductory words, Rienzi's tone turns vitriolic. His comments are even targeted against the epigraph by Parra et al. ("You see leaders today, all over the world, doing it again! Black, white, yellow, brown, people of every color slaughtering people of every color! Because Satan is always the same"; from *The Emperor of Ocean Park*, by S.L. Carter). For Rienzi , this reveals the geneticists' "real" views about the race issue in a "shameless, subjective, and unscientific manner." He asks how a periodical like the PNAS could publish a text so imbued with "sentimental subjectivity."

The rest of Rienzi's observations consist of a succession of theoretical and methodological questions that reveal his specialized and thorough reading of the geneticists' text. He goes into detail on the characteristics of the samples, the classification criteria used, the number and type of genetic markers adopted, and the interpretation of the tables, graphs, and statistical tests. He concludes that:

> "In summary, this paper does not, in any way, shape, or form, invalidate the biological race concept, and for anyone to make that claim is highly irresponsible to say the least. […] One wonders if, as regards issues dealing with human biology, we are now dealing with the same kind of entrenched, socio-politically motivated establishment that Galileo dealt with in his work on astronomy. If we let political correctness 'inform' human-genetic scientific work, we are headed back to the days of the Inquisition. […] It is time to stop attempting to deform natural realities to match political ideologies, and instead accept the racial realities which exist and deal with them as best we can."[6]

A remote 'proximity': egalitarian racialism and hierarchical racialism

Paul Brodwin, whom we mentioned in the introduction, wrote a comment that somewhat undoes the boundaries between the laboratory and society: "tracing our ancestry–via a pattern of particular alleles, or mutations on the Y chromosome or in mitochondrial DNA–has become not just a laboratory technique, but a political act" (2002, p. 324).

As he sees it, whatever the answers supplied by genetics, the premises and repercussions are many and significant. Which agents

requested the tests and who provided the samples? Who interprets the findings and who publishes them? In what contexts are any new interpretations presented to the public? How are they used?

In the sections above, we have reviewed two different kinds of reactions, one by a black rights activist in Brazil and one by a spokesperson from a far-right European-American movement, which focus on the findings of genome investigations carried out recently in Brazil. Both are openly critical of the findings, repercussions, and implications of the research by the geneticists from the Universidade Federal de Minas Gerais. Athayde Motta refers to the "Molecular Portrait of Brazil" as a "political and ideological discourse whose prime function is to maintain the *status quo* of racial inequalities in Brazil." M.X. Rienzi, for his part, considers the studies by the Brazilian scholars unscientific and of a political and ideological nature designed to discredit "natural realities," i.e., the existence of racial differences and hierarchies.

What we call 'proximity' (duly placed between quotation marks for reasons we will explore below) actually evinces a number of things, including the huge influence and power that genetic knowledge wields in the contemporary world, in this case as a source for questioning the notions of identity and the cohesion of social groupings. It has reached such a status and attained such visibility and legitimacy that it ultimately draws into apparent 'proximity' dimensions and social players that are actually greatly distanced from each other on any ideological or political plane.

In *On human diversity: nationalism, racism, and exoticism in French thought*, historian and philosopher Tzvetan Todorov introduces a conceptual distinction that may be of use in understanding this 'proximity' to which we refer. He underscores the difference between "racialism"—a matter of ideology, a doctrine concerning human races—and "racism"—a matter of behavior, usually involving hatred and disdain for people with clearly defined physical traits that distinguish them from others (1993).

Before we discuss Motta and Rienzi from a racialism–racism perspective, we must first comprehend what stance modern genetics (including current genome research in Brazil along the lines of the "Molecular Portrait of Brazil") takes towards this conceptual duality.

Criticisms of the concept of 'race' based on the genetics of populations and on neo-Darwinism have been around for decades. For example, they bore an influence on the first declarations on race drawn up by UNESCO in the 1950s. In the post-war agenda to combat racism around the world, an anti-racialist conceptual framework was clearly present. This agenda forwards the notion that the concept of race is not scientifically founded and has little to add to any understanding of human biological diversity. It would

be expected that this stance would eventually erode some of the key conceptual building blocks (the existence of races) that have led to discriminatory treatment and the reproduction of social inequality based on race. To a certain extent, this has been the position taken by a large group of geneticists. As the "UNESCO Declaration on Race" shows, a school of biology—or at least a group of researchers—emerged after the war that advocated a "post-World War II universal man, biologically certified for equality and rights to full citizenship" (Donna Haraway, 1989; 1997). Thanks to the efforts of a group of biologists, including Theodosius Dobzhansky and Julian Huxley, it was possible for evolutionary biology and humanism to work hand-in-hand to reign in aggression and encourage cooperation, dignity, and progress among humankind after World War II (see Santos, 1996; Maio, 1998).

The "Molecular Portrait of Brazil" is a direct descendent of this influential universalist tradition, which is concomitantly anti-racialist and anti-racist and which characterized a sizeable portion of the research on the variability of human biology throughout the second half of the 20th century.[7] Even if its biological bent has not been fully accepted, the interpretative proposition derived from genome research has found a most receptive audience in many circles in Brazil, especially because of its implications. Even as it becomes increasingly clear that Brazil is not a "racial democracy," as socioeconomic statistics show, the country is still seen as racially and culturally hybrid. Dear to broad swathes of the Brazilian society, this stance argues that it is not easy to make out precise compartments, which by and large ends up neutralizing any sharply defined racial identities. As genome research has gained authority and esteem, genetic studies have displayed common points with and provided support for this current, even if geneticists do argue that the concept of race has limited relevance in biological terms. Above all, the narratives about the (bio)history of the formation of the Brazilian peoples that have been produced by genome research along the lines of the "Molecular Portrait of Brazil" are in tune with a deep-seated social imagination that sees miscegenation as a positive, defining element in the identity of Brazil as a nation.

The apparent 'proximity' between Motta and Rienzi becomes an infinite distance when one notes that in the former case a racialist yet eminently anti-racist set of assumptions predominates, whereas in the latter, an extreme racialism-racism conjugation is what prevails. Yet despite such huge differences, they do hold one point of common ground concerning genome research, which is their criticism of the proposition to dissolve (biological and racial) identities that follows from the "Molecular Portrait of Brazil," i.e. its support of an anti-racialist viewpoint.

In Motta's view, Brazil displays a system of "archaic and perverse" race relations, which ultimately masks existing discrimination and prejudice and helps assure continued racial inequality. He sees the anti-racialism stressed by genetics—as expressed in the "Molecular Portrait of Brazil" and other genetic research—as undermining the cornerstones of the collective identities needed for organizing resistance to oppression. Designed to strengthen racial identity, compartmentalization and polarization are forms of sociability that should be implemented through political actions meant to fight racism, much as what happened in the US.

If Motta's racialism in theory aims to overcome inequities (his criticism of the work by Brazilian geneticists has much to do with the implications that these genetic data may have in discussions about the introduction of affirmative action policies in Brazil), Legion Europa's racialism has the precise goal of establishing and reinforcing inequities on many levels. In other words, an "egalitarian racialism" predominates in one, while in the other a "hierarchical racialism" prevails. Legion Europa's proposal makes a dangerous link between racialism (with a strong biological tenor) and racism, which Todorov sees as producing especially disastrous results, as was the case with Nazism (1993).

The elements already discussed—compartmentalization, polarization, antagonism, and conflict, again with a view to strengthening racial identities—inform and form the essence of Rienzi's applications of the work by the Brazilian geneticists. Legion Europa's emphasis on compartmentalization is (euphemistically) built on metaphors that play on the words 'garden', 'flower', and 'honey' ("Our race is the soil from which the garden known as 'Western Civilization' bloomed. We are the bees who gather the best of each flower to make the sweetest honey, but we shall also sting mightily those that dare tread on our feet"), under which lies a powerful dose of racial hatred, eugenics, prejudice, and hierarchy, represented by the sting of the bee.

Relativizing polarities

Almost three decades ago, Lévi-Strauss published his book *View from afar*, which contains a chapter entitled "Race and Culture." This title echoes a well-known work of his, *Race and History*, which was written on commission by UNESCO during its anti-racist drive in the post-holocaust years (Lévi-Strauss, 1960 [1952]). At one point, Lévi-Strauss refers to the "appearance of the genetics of peoples on the anthropological stage" (1986, p. 14). "Race and culture" shows that the overlapping of anthropology and genetics is not as recent as one might think.

These days, when anthropologists reflect upon and write about genetics, it is not uncommon for them to make frequent references to the notions of "biodeterminism" or "bioreductivism." This is what Roger Lancaster (2003, 2004) suggests about contemporary US anthropologists. As he explains, "over the past decade, biomythology has permeated American culture as never before. The idea that gender norms, sexual orientations, and social institutions are genetically (or neuro-hormonally) 'hard-wired' flourished in the long shadow of the Human Genome Project" (2004, p. 4). Stressing the role of sociobiology and evolutionary psychology in this process, Lancaster does not attribute the dissemination of bioreductivist viewpoints solely to the expansion of certain fields of science, but above all to the ways in which scientific knowledge is communicated by the media.[8] The media make plenty of room for explanations about how a small set of elements or how this or that gene or biological structure 'determine' this or that complex characteristic; they also comment on the development of drugs or other technologies to cure diseases or ameliorate complex social problems. Lancaster believes this type of information is 'easy' to convey and readily absorbed by the general public because of its oversimplified cause-effect-solution reasoning. Even if such ideas are refuted by later research, it is unlikely that the disproving of any given bioreductivist formulation will gain as much space in the media as that accorded the original release of information.[9]

Lancaster also notes that certain debates about identity politics in the US place a sharp emphasis on essentializations, with affinities to bioreductivism. Some sectors of the gay movement, for instance, embrace the notion of a "gay gene" to bolster legal arguments pertinent to civil rights discussions. In other words, segments of organized social groups adopt bioreductivism propositions with roots in biology and use these when they devise political tactics for defining and strengthening identities. He comments on this association:

> "Identity politics, the quintessentially modern, American justification for social action and political redress by appeal and deep-seated, essential identities, provides fertile ground for bioreductivism, and everybody—the marginal or oppressed and dominant alike—wants to get in on the act. […] More than anything, today's reductivism offers to stabilize identity in the *points de capiton* of biology—that is, it purports to secure stability and certitude in an era when nothing much seems anchored about either identity or biology. Furthermore, this approach to securing basic rights and recognition resonates with a longstanding Western understanding of 'nature' as that which exceeds conscious control and volition" (2004, p. 5).

How does this digression relate to our case study? In many ways—including the fact that discussions of genome research in Brazil are, at their core, discussions about identity politics.

If, in the case set out by Lancaster, social movements can draw upon biological reductivism, incorporating certain assumptions into their political actions, then in the debates sparked by the "Molecular Portrait of Brazil," what we see is science undermining some of the cornerstones of identity politics. The genetic research conducted in Brazil shows that what we have is not so much profound, immutable essences but rather the 'revelation' of a remarkable mixing. With a bit of rhetorical license, one might say that the results of DNA sequencing show that appearances can be deceptive; if we look under their skin, we find that to a greater or lesser extent, whites are genomically 'African' and blacks are genomically 'European'. A subliminal message conveyed by the "Molecular Portrait of Brazil" is that phenotypes and genotypes may be very far removed from each other. These are arguments that rely on emphasizing the fluidity, instability, and ill-defined nature of racial categories.

Whether linked to the black movement like Motta or, above all, to the far right like Rienzi, parts of society represented by organized groups view the anti-essentialist discourse in the "Molecular Portrait of Brazil" as a 'threat' to their basic assumptions, in varying degrees.[10] We would add that the anti-essentialist perspective that can be inferred from genome research could come to play a significant role in rhetorical clashes of great social and political import, thanks to the authority and legitimacy that this outlook currently enjoys in Western society.

The discussions kindled by the "Molecular Portrait of Brazil" ultimately rock one of the most prevalent 'common sense' views held by some currents in the social sciences, which see biology (and genetics) as inexorably linked to the proposition and defense of deterministic and essentialist principles. If in Lancaster's examples we see an alliance between a certain line of biological thought and social movements, in "Molecular Portrait of Brazil" a head-to-head battle is waged with science in the defense of an anti-essentialism that is considered 'threatening' to certain agendas in social and political circles.[11]

Closing remarks

Throughout this work, we have reflected upon the repercussions of research about the biological and genomic variability of the Brazilian people, and particularly how these studies have fueled clashes and disagreements about assumptions involving extremely broad-based sociopolitical and historical conflicts. In one sense,

because of the repercussion of the study published in PNAS, Queixadinha—a tiny, poor rural hamlet in Vale do Jequitinhonha, northern Minas Gerais state, which is rarely even included in national maps, much less in atlases published abroad—has become a playing piece in a game that ultimately is all about discursive conflicts over the ongoing ethnic-racial tension caused by immigration from former African and Asian colonies and Eastern European countries to Western Europe, as well as by the very unification process in Europe. We may well ask ourselves whether, given the emphasis on the genome dimension, Queixadinha might not, under a new guise, represent the idea of Brazil as a prime analytical model in debates on miscegenation, race, and race relations—a role the country has so often played in the past.[12] In this updated version of Brazil as a 'paradigmatic' country in which the paradoxes of using the concept of race are exposed by genome research, Queixadinha is seen by the far-right, represented by Legion Europa, as a hotly contested anti-model.

Our observations throughout this paper also lead us to reflect upon what an "anthropology in the era of genetics" might be. Might we be facing a situation in which new biological technologies directly or indirectly feed the emergence of new ideological configurations? Based on the panoramas we have sketched out, we can state that what we glimpse on the horizon is less a combination of "new biological technologies and new ideological configurations" and more a combination of "new biological technologies and old ideological configurations," to paraphrase Luiz Fernando Duarte.[13] DNA and genomics are enhancing discussions of race, typologies, and nationalisms, against a backdrop of issues in identity and political change that transcend national borders and gain far-reaching international forms.

We can conceptualize the 'geneticization' of society as a cluster of changes and a way of generating new meanings within the ambit of Western societies, where the new genetics, or genomics, could be a building block and a key driving force (Lippman, 1991). Commenting on the relationship between geneticization and identities, Paul Brodwin (2002, p. 324) states that "emerging genetic knowledge thus has the potential to transform contemporary notions of social coherence and group identity. […] What is at stake is also personal esteem and self-worth, group cohesion, access to resources, and the redressing of historical injustice."

As we have argued, the significance of racial differences, and their very essence and existence, are being rebuilt thanks to the impact of genetics. One should ask if this new knowledge and technology will radically alter the scenario or if, to the contrary, they will reinstate and reinforce even more insidious and deterministic ways of perceiving racial differences. In practice, what

we perceive is that the relations between biological knowledge and technologies, on the one hand, and racial differences, on the other, may take different forms depending upon their sociopolitical context. We have seen that the so-called geneticization of social dynamics along the lines of the "Molecular Portrait of Brazil" does not necessarily lead to a greater or more ingrained naturalization of racial differences. According to Paul Gilroy, a perspective 'against race' is growing out of the research into the genomic makeup of Brazilians, which leads to a "deliberate and self-conscious renunciation of 'race' as a means to categorize and divide humanity" (2000, p. 17). Therefore, we must view with a relativizing eye the assumption that a 'geneticization' of society, including even its ramifications in the sphere of identity politics, will inevitably go hand-in-hand with determinism, essentialism, and hierarchy, traits that much of socio-anthropological thinking automatically links to biology.[14]

In the complex, shifting field of interaction between scientific knowledge, racism and racialism, local and transnational contexts, and the agendas of the most varied social movements, the genome-based approach to human biological variability is establishing itself as a tool that can refashion the patterns of proximity and distance between "beneficiaries of racial hierarchy" and "people who have been subordinated by race-thinking," to borrow Gilroy's words. While the ultra-modern language of genes and DNA affirms itself as a highly influential element in debates about identity politics in the contemporary world, the hyper-outdated perspective of race and essentialized differences endures as an element far from being overshadowed, but that is undergoing constant reshaping as it interacts with emerging knowledge and technologies.

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FOOTNOTES

[1] The opening page of the Legion Europa website (www.legioneuropa.org) lists the following links: "Who we are"; "What we believe"; "What to do?"; "Euroholidays"; "Ideology of Ethnicity"; "Culture"; "Racial Diversity"; "History"; "Race Reality"; "Commentaries"; "Links". The website was online until at least February 2004, but to date has no longer been accessible (June 2005). All material on the website on November 2, 2003, was printed out, and a copy was filed at the Biblioteca da Casa de Oswaldo Cruz, Fundação Oswaldo Cruz, Rio de Janeiro.

[2] Another example of the potential for linking genetic knowledge and social issues, with implications for public policy making, is the recently published article "Pode a genética definir quem deve se beneficiar das cotas universitárias e demais ações afirmativas?" (Can genetics define who should benefit from university quotas and other affirmative actions?), by Pena and Bortolini (2004).

[3] Curiously enough, when the intent of genetic research is to uncover ancestry patterns among black people, Motta paints it in a very positive light. Such is the case of a documentary entitled *Motherland: a Genetic Journey*, produced by the BBC. It contains findings about the genetic origins of Afro-Caribbean Britons. After undergoing genetic testing, program participants traveled to the regions inhabited by their forebears (identified through genomic evidence) so they could "understand a little more about the culture which, to some extent, they share until this day." The narrators add: "It was important for *Motherland* to have the support of a renowned centre of

science. Not just to ensure the programme's integrity, but also to cause the scientific world to reflect upon [the fact] that genes and chromosomes may represent much more than defining an animal's gender" (Cesar and Motta). In Santos and Maio (2004), we comment on this construction of the image of a "genetics for the good."

[4] The online version of PNAS receives about four million hits a week, according to the periodical's website (www.pnas.org/misc/about.shtml, accessed on May 24, 2004).

[5] In the case of the article by Parra et al., the recommendation was made by Francisco Mauro Salzano, a leading geneticist who works at UFRGS and is one of the only two Brazilian members of the US's National Academy of Sciences, which publishes PNAS.

[6] For the purposes of systematization, it is worth highlighting a few aspects of Legion Europa's criticisms. First, they are based solely on the article published in PNAS (the papers published in the *American Journal of Human Genetics* and *Ciência Hoje* receive no mention). Second, the criticisms are particularly concerned with how the work by the Brazilian geneticists was widely broadcast by the international media and with the fact that the findings may be extrapolated into contexts other than Brazil. Third, the comments place great emphasis on technical aspects (concerning molecular biology and other methodological questions) and are made by someone who considers himself a member of the same community as the scientists (i.e., the area of genetics of peoples).

[7] In Santos and Maio (2004, pp. 86-7), we stated that "within this perspective, the 'Brazilian man' presented by the geneticists, once freed from racist perspectives and aware of his biology, would have a better chance of seeking equality and full citizenship for himself and his peers." In the case of the "Molecular Portrait of Brazil" and other genetic research carried out by Pena and collaborators, the findings that these scientists considered propitious for the strengthening of democratic rights were appropriated or interpreted differently by other groups involved in the debate on race and race relations in Brazil.

[8] For more on this, see Condit (1999), Horgan (1993), Massarani et al. (2003), and Rose (1997), as well as many articles in the journal *Public Understanding of Science*.

[9] We would like to observe that Lancaster's reflections take on a certain air of nostalgia when he notes that the new bioreductivisms and essentializations currently prevalent in some academic circles and (US) popular culture "not only reverse decades of sophisticated cultural theory and empirical research on cultural variation; they have come to occupy the place once held by anthropology in a progressively dumbed-down serious public sphere" (Lancaster, 2004, p. 4).

[10] Athayde Motta had the following to say about the "Molecular Portrait of Brazil": "the information that 60% of Brazil's white population descends from blacks and Indians may provide some fuel for those who like to say there are no whites in Brazil, but it is not genetics that will make this happen. According to our society's patterns of race and cultural relations, the definition of being white is far from a question of genetics or biology" (2000a). For Motta, the heart of the disagreement is not exactly the anti-essentialism of genetics, but an anti-essentialism that might spread from its roots in biology to penetrate the social and cultural spheres and become instrumental in defining world views.

[11] Manuel Castells' perspective on the forms and origins of identity construction is useful for reflecting on our topic. He characterizes a legitimizing identity, a resistance identity, and a project identity. The last of these is present "when social actors, on the basis of whichever cultural materials are available to them, build a new identity that redefines their position in society and, by so doing, seek the transformation of overall social structure" (Castells, 1997, p. 8; also see Calhoun, 1994). The notions of Afro-descendents and Europeans can be understood in the light of the notion of project identity within race relations. What happens is that to a greater or lesser extent genetics, in the form of the "Molecular Portrait of Brazil," destabilizes key assumptions that support these project identities; hence the resistance shown by Motta and Rienzi.

[12] As an analytical model for genome studies on race and the biological diversity of the Brazilian people at the beginning of the 21st century, it may be that Queixadinha is something of an equivalent to what was represented by research into traditional communities in rural Bahia state, coordinated by Charles Wagley in the 1950s as part of a set of investigations sponsored by UNESCO in the post-holocaust years. As Wagley puts it in his introduction to *Race and Class in Rural Brazil*, which contains the findings of ethnographic research conducted in various locations around the country, "the world has much to learn from a study of race relations in Brazil. [...] The various research projects on the subject of race relations which have been stimulated by the UNESCO project in Brazil should give us for the first time an objective knowledge of the situation as it exists under a variety of conditions throughout this vast and variegated country" (Wagley, 1952, pp. 8-9). For more on Brazil in discussions involving race and racism in the post-war years, see Maio (1998; 2001).

[13] From a comment made during a discussion of the working group "Pessoa e corpo: novas tecnologias biológicas e novas configurações ideológicas," coordinated by Luiz Fernando Dias Duarte and Jane Russo, XXVII Encontro Anual da Anpocs (Caxambu, Oct. 25-27, 2003).

For more on this, see the excellent discussion by Peter Wade (2002) in his recent book *Race, Nature and Culture* (especially chapters 5 and 6).

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