

# Blackness, Indigeneity, Multiculturalism and Genomics in Brazil, Colombia and Mexico

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*Abstract.* Genomic research in Latin America has looked into the African, Amerindian and European ancestry of local populations. This article explores how indigeneity and blackness figure in genomic science in the light of previous and current representations of indigenous and Afro-descendent people. These categories have been cast as ‘other’ in Latin America, but they have occupied different locations in ‘structures of alterity’. I look briefly at these similarities and differences in the colonial and republican periods and in recent multiculturalist reforms. I look at the gendered sexual imagery surrounding each concept, before examining in detail how blackness and indigeneity figure in gendered ways in genomic science research on admixture and ancestry in Brazil, Colombia and Mexico. I conclude that, in the context of multiculturalism, genomics works to re-centre imaginaries of the nation around the mestizo and mixture, while casting blackness and indigeneity, in sexualised and gendered ways, as different kinds of others.

*Keywords:* race, *mestizaje*, genetics, gender, sexuality, mestizos, Brazil, Colombia, Mexico

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### Introduction

In 2006, the online journal *Indian Country Today* published an article under the title 'Indigenous Founding Mothers of the Americas'. The author of the article reported on genetic research carried out in Colombia by the geneticist Emilio Yunis and his team: 'The indigenous roots of Colombia are coming into focus, as it is yet another Latin American nation learning about its true history: the founding mothers of Colombia were indigenous.'<sup>1</sup> The Colombian national daily, *El Tiempo*, reported on the same piece of research, which, it said, was 'concerned exclusively with the genetic load transmitted by Colombian women' and showed that '85.5 per cent of Colombian mothers are of indigenous origin'.<sup>2</sup> Yunis, in his book entitled 'Why Are We the Way We Are?' and aimed at a general audience, describes earlier research carried out by another team, which revealed that a sample population from a northern region of Colombia had 'Amerindian mothers [and] European fathers'.<sup>3</sup>

Genetic research on Latin American populations has long had an interest in 'mestizos', people characterised by what geneticists call 'admixture'. This is seen as the product of *mestizaje* (mixture), involving early colonial sexual relations between European colonisers, indigenous peoples and Africans brought as slaves, and of continuing sexual relations between the offspring of these earlier unions.<sup>4</sup> One repeated finding in recent genomic science is that, in present-day populations of people labelled by geneticists as 'mestizos' or even 'whites', genetic matrilineages are characterised by high levels of markers taken to indicate indigenous ancestry, while genetic patrilineages show high frequencies of European ancestral genetic markers (the technicalities of this are explained later on).<sup>5</sup> This observation is interpreted as showing that the early sexual encounters between Europeans, Africans and Amerindians were marked by 'sexual asymmetry' or 'sex bias', in which European men were having sex (and children) with indigenous and, in some cases, African women, while

<sup>1</sup> The article is reproduced at <http://cacreview.blogspot.com/2007/04/indigenous-founding-mothers-of-americas.html>.

<sup>2</sup> See [www.eltiempo.com/archivo/documento/CMS-3283433](http://www.eltiempo.com/archivo/documento/CMS-3283433).

<sup>3</sup> Emilio Yunis Turbay, *¿Por qué somos así? ¿Qué pasó en Colombia? Análisis del mestizaje* (Bogotá: Editorial Temis, 2003), p. 117. See also Luis G. Carvajal-Carmona et al., 'Strong Amerind/White Sex Bias and a Possible Sephardic Contribution among the Founders of a Population in Northwest Colombia', *American Journal of Human Genetics*, 67: 5 (2000), pp. 1287–95.

<sup>4</sup> In genetics, 'admixture' has long been used to refer to interbreeding between populations previously relatively isolated from each other. Monica Sans, 'Admixture Studies in Latin America: From the 20th to the 21st Century', *Human Biology*, 72: 1 (2000), pp. 155–77.

<sup>5</sup> Genomics is a term used to describe genetic science after the advent of technologies that allow the whole genome to be analyzed and interactions between different parts of the genome to be studied as well as gene-environment interactions. 'White' was a category we found mainly in Brazilian genetics; *branco* is a census category in Brazil.

indigenous and African men, and European women, generally failed to leave their genetic mark – or this particular kind of genetic mark at least – on successive generations to the same extent.<sup>6</sup>

This is one example of how Africanness/blackness and Amerindianness/indigeneity, and their place in national formations, appear in genomic research into population and ancestry in Latin America. In this article, I explore how ‘African-derived’ and ‘Amerindian/indigenous’ populations – and African and Amerindian ancestry – figure in recent genomic research in Brazil, Colombia and Mexico.<sup>7</sup> I place this in the context of the changing ways in which people identified by themselves and/or others as ‘black’ and ‘indigenous’ – or some variant of these terms – have been represented in Latin American societies from colonial times, through nation-building processes, to recent multiculturalist versions of the nation. In some respects, black and indigenous people have been seen as similar – both subaltern, both racially identified, both culturally distinct from the dominant groups, both ‘other’. In other ways, they have been cast as quite different – in brief, black people are typically seen as less ‘other’ and as less autochthonous. These generalisations apply at a very broad level in Latin America, but clearly vary widely in the region. The countries discussed in this article – Brazil, Colombia and Mexico – are notable for the particular places accorded to blackness and/or indigeneity in their national imaginaries. In other countries rather different historical configurations of race and nation exist, but these are not explored here.

<sup>6</sup> Vanessa F. Gonçalves, Francisco Prosdocimi, Lucas S. Santos, José Miguel Ortega and Sérgio D. J. Pena, ‘Sex-Biased Gene Flow in African Americans but Not in American Caucasians’, *Genetics and Molecular Research*, 6: 2 (2007), pp. 156–61; Carvajal-Carmona et al., ‘Strong Amerind/White Sex Bias’, Maria Cátira Bortolini et al., ‘African-Derived South American Populations: A History of Symmetrical and Asymmetrical Matings According to Sex Revealed by Bi- and Uni-Parental Genetic Markers’, *American Journal of Human Biology*, 11: 4 (1999), pp. 551–63; Juliana Alves-Silva et al., ‘The Ancestry of Brazilian MtDNA Lineages’, *American Journal of Human Genetics*, 67: 2 (2000), pp. 444–61; Denise R. Carvalho-Silva, Fabrício R. Santos, Jorge Rocha and Sérgio D. J. Pena, ‘The Phylogeography of Brazilian Y-Chromosome Lineages’, *American Journal of Human Genetics*, 68: 1 (2001), pp. 281–6; A. R. Marrero et al., ‘Pre- and Post-Columbian Gene and Cultural Continuity: The Case of the *Gaucho* from Southern Brazil’, *Human Heredity*, 64: 3 (2007), pp. 160–71; Sijia Wang et al., ‘Geographic Patterns of Genome Admixture in Latin American Mestizos’, *PLoS Genetics*, 4: 3 (2008), p. e1000037; Gabriel Bedoya et al., ‘Admixture Dynamics in Hispanics: A Shift in the Nuclear Genetic Ancestry of a South American Population Isolate’, *Proceedings of the National Academy of Sciences of the United States of America*, 103: 19 (2006), pp. 7234–9; Francisco M. Salzano and Maria Cátira Bortolini, *The Evolution and Genetics of Latin American Populations* (Cambridge: Cambridge University Press, 2002), p. 309.

<sup>7</sup> The terminology used to refer to ‘black’ and ‘indigenous’ people in Latin America is shifting and often politicised. Here I use the terms that geneticists tend to use to describe the populations they sample.

Genomic science may seem an odd place to look for ideas about blackness and indigeneity in the national frame, but as a growing number of studies attest, concepts of race, ethnicity and nation, and gender do appear in recent genomic research. Race has been the subject of a good deal of science studies research in this area.<sup>8</sup> The concept of race remained influential in the life sciences long after the demise that many social scientists thought it had suffered in those fields after the Second World War, and in Latin America, geneticists could unproblematically refer to biological processes of ‘racial admixture’ in the 1980s.<sup>9</sup> Today, most geneticists reject the concept of race as biologically valid.<sup>10</sup> Still, the concept of ‘bio-geographical ancestry’ is often used to refer to the different genetic ancestral components that can be found in the genomes of sampled populations. Bio-geographical ancestry is generally specified in relation to other population groups, which can look rather like ‘races’ to the non-expert. Thus the concept of race is seen as invalid for, say, Latin American populations, because – like all populations – they are a mixture. Yet their mixture is said to be of African, Amerindian and European ancestries, which assumes that ‘African ancestry’ is the ancestry of Africans, seen as a geographical population that has certain biological characteristics, which are in practice defined by sampling selected present-day African populations. These characteristics are not necessarily unique to the African population, but they do allow African ancestry to be detected in other populations. The effect is to make ‘African bio-geographical ancestry’ look very close to something like ‘African race’, even though the concept of an African race, as a clear biological entity, is rejected by most geneticists.<sup>11</sup> For the geneticists, this is not about ‘race’, because they are referring to a selection

<sup>8</sup> Barbara A. Koenig, Sandra Soo-Jin Lee and Sarah S. Richardson (eds.), *Revisiting Race in a Genomic Age* (New Brunswick, NJ: Rutgers University Press, 2008); Ian Whitmarsh and David S. Jones (eds.), *What's the Use of Race? Modern Governance and the Biology of Difference* (Cambridge, MA: MIT Press, 2010).

<sup>9</sup> Jenny Reardon, *Race to the Finish: Identity and Governance in an Age of Genomics* (Princeton, NJ: Princeton University Press, 2005); M. Helena L. P. Franco, Tania A. Weimer and Francisco M. Salzano, ‘Blood Polymorphisms and Racial Admixture in Two Brazilian Populations’, *American Journal of Physical Anthropology*, 58: 2 (1982), pp. 127–32.

<sup>10</sup> David Serre and Svante Pääbo, ‘Evidence for Gradients of Human Genetic Diversity within and among Continents’, *Genome Research*, 14: 9 (2004), pp. 1679–85.

<sup>11</sup> Joan H. Fujimura and Ramya Rajagopalan, ‘Different Differences: The Use of “Genetic Ancestry” Versus Race in Biomedical Human Genetic Research’, *Social Studies of Science*, 41: 1 (2011), pp. 5–30; Jenny Reardon, ‘Race without Salvation: Beyond the Science/Society Divide in Genomic Studies of Human Diversity’, in Koenig, Lee and Richardson (eds.), *Revisiting Race in a Genomic Age*, pp. 304–19; Catherine Bliss, ‘Genome Sampling and the Biopolitics of Race’, in Samuel Binkley and Jorge Capetillo (eds.), *A Foucault for the 21st Century: Governmentality, Biopolitics and Discipline in the New Millennium* (Boston, MA: Cambridge Scholars, 2009), pp. 322–39; Duana Fullwiley, ‘The Biological Construction of Race: “Admixture” Technology and the New Genetic Medicine’, *Social Studies of Science*, 38: 5 (2008), pp. 695–735.

of quite specific genetic markers, which are found more in African populations than elsewhere and which may not even be linked to phenotype (that is, they may not determine anything about the body). But the net result is to reiterate a concept that looks like ‘race’ to non-experts. This effect is strengthened if connections are posited between certain ancestries and disposition to certain diseases, thus creating a link, albeit not a very deterministic one, between genetic markers and phenotype.<sup>12</sup> The effect is reinforced further by the analysis of some geneticists who assert that human genetic diversity does objectively cluster into five or six continent-shaped categories, such as Africa, Eurasia, America and so on.<sup>13</sup>

Using data from a research project on genetics laboratories in Mexico, Colombia and Brazil, I will show how genomic research consistently reiterates that these Latin American nations are fundamentally mestizo populations, formed from the mixture of European, African and Amerindian biological ancestries. These genetic data are also published outside scientific circles, so they are part of existing wider public discourses about mixture, ‘ethnic’ difference and the nation. Long-standing notions of *las tres razas* in Latin American nations are thus reiterated, even if geneticists in the region avoid or explicitly reject the notion of race.<sup>14</sup> Latin American genetics also often target specific nations and their familiar sub-regions, specifying the proportions of African, Amerindian and European ancestry that constitute national and sub-regional populations.<sup>15</sup> Overall, the science tends to reiterate the well-known interweaving of concepts of race and nation.<sup>16</sup> In this sense, genomic science is a productive place to examine how constructs of race and nation are being produced and circulated in Latin America today.

I argue that genetic studies tend to separate out ‘African-derived’, ‘Amerindian’ and ‘mestizo’ – and, in Brazil, ‘white’ – populations, sampling

<sup>12</sup> Michael J. Montoya, *Making the Mexican Diabetic: Race, Science, and the Genetics of Inequality* (Berkeley, CA: University of California Press, 2011).

<sup>13</sup> Deborah A. Bolnick, ‘Individual Ancestry Inference and the Reification of Race as a Biological Phenomenon’, in Koenig, Lee and Richardson (eds.), *Revisiting Race in a Genomic Age*, pp. 70–85; Gísli Pálsson, *Anthropology and the New Genetics* (Cambridge: Cambridge University Press, 2007), pp. 176–206.

<sup>14</sup> Sérgio D. J. Pena, *Humanidade sem raças?* (São Paulo: Publifolha, 2008).

<sup>15</sup> The national frame is not always predominant, as some studies may focus on ‘Latin American mestizos’ generally in the search for genetic variants linked to complex disorders such as diabetes. See Wang et al., ‘Geographic Patterns’.

<sup>16</sup> Nancy P. Appelbaum, Anne S. Macpherson and Karin A. Roseblatt (eds.), *Race and Nation in Modern Latin America* (Chapel Hill, NC: University of North Carolina Press, 2003); Nancy Leys Stepan, *The Hour of Eugenics: Race, Gender and Nation in Latin America* (Ithaca, NY: Cornell University Press, 1991); Peter Wade, *Race and Ethnicity in Latin America* (2nd edition, London: Pluto Press, 2010); Carlos López Beltrán (ed.), *Genes (&) mestizos: genómica y raza en la biomedicina mexicana* (Mexico City: Universidad Nacional Autónoma de México and Ficticia, 2011).

and representing them as distinctive, even though the geneticists recognise that the data show they are all genetically mixed. This separation is reinforced by the constant reference to the three founding genetic ancestries, themselves based on the genetic profiles of samples that act as standard reference populations of contemporary Europeans, Africans and Amerindians. This constant reference to distinct ancestries and populations is fundamental to highlighting that the nation is essentially mestizo. The genetic research also reiterates certain familiar differences between 'black' and 'indigenous' people, although in relation to sexualised imagery the story is not straightforward, as what emerges is a discourse about European male sexual agency, which backgrounds both African and Amerindian masculinity.

These findings raise important questions about culture and epistemology in science as it operates in the lab and in public life. Is genomic science simply reiterating established notions of nation and difference? If so, how does such a reiteration occur in practice, given that the 'new genetics' are often held to introduce new modes of thinking about human diversity and life more generally?<sup>17</sup> If not, what is new about the way genomic science works with the notion of diversity?

The geneticists we studied were interested in tracing ancestries mainly for purposes of medical genetics, but also for tracing population movements. They started with the basic idea of admixture, stemming from three ancestral continental populations. This starting point was over-determined by the coincidence of two powerful ideas. First, admixed populations are a useful object in genomic studies that seek disease-related genes.<sup>18</sup> Second, Latin American populations are widely understood to be mestizo, admixed by definition; the task is to specify that admixture accurately in genomic terms.

<sup>17</sup> There is a large literature on this topic. See, for example, Donna J. Haraway, *Modest\_Witness@Second\_Millennium.Femaleman@\_Meets\_Oncomouse*<sup>TM</sup> (London: Routledge, 1997); Sahra Gibbon and Carlos Novas (eds.), *Biosocialities, Genetics and the Social Sciences: Making Biologies and Identities* (London: Routledge, 2007); Paul Rabinow, 'Artificiality and the Enlightenment: From Sociobiology to Biosociality', in Jonathan Crary and Sanford Kwinter (eds.), *Incorporations* (New York: Zone, 1992), pp. 234–52; Dorothy Nelkin and Susan Lindee, *The DNA Mystique: The Gene as Cultural Icon* (New York: Freeman, 1995); Pålsson, *Anthropology and the New Genetics*; Peter Wade (ed.), *Race, Ethnicity and Nation: Perspectives from Kinship and Genetics* (New York and Oxford: Berghahn, 2007); Nikolas Rose and Carlos Novas, 'Biological Citizenship', in Aihwa Ong and Stephen J. Collier (eds.), *Global Assemblages: Technology, Politics, and Ethics as Anthropological Problems* (Oxford: Blackwell, 2005), pp. 439–63; Sarah Franklin, 'Biologization Revisited: Kinship Theory in the Context of the New Biologies', in Sarah Franklin and Susan McKinnon (eds.), *Relative Values: Reconfiguring Kinship Studies* (Durham, NC: Duke University Press, 2001), pp. 303–25; Deborah Heath, Rayna Rapp and Karen-Sue Taussig, 'Genetic Citizenship', in David Nugent and Joan Vincent (eds.), *A Companion to the Anthropology of Politics* (New York: Blackwell, 2007), pp. 152–67.

<sup>18</sup> Ariel Darvasi and Sagiv Shifman, 'The Beauty of Admixture', *Nature Genetics*, 37: 2 (2005), pp. 118–9.

A third factor was that, in a post-colonial world, Latin American mixture was seen by geneticists as being deserving of a higher profile globally and as needing to be understood as varied within the region.<sup>19</sup>

The geneticists therefore started, as many population and anthropological geneticists do, with pragmatic socio-cultural definitions of the 'populations' that could be taken to fit with the basic model of admixture – 'mestizo', 'Amerindian/indigenous', 'African-derived' and, in Brazil, 'white'. To define such populations, they used observer definitions of 'black', 'African-derived' and 'mestizo', common-sense and state definitions of 'indigenous community', and sometimes self-identifications by sampled people. They then presented genetic data for these populations. These data could show that the various populations were rather similar, but they also tended to reiterate the basic categorisations they started with, now with the implication of some genetic level of difference.

The geneticists were interested in ancestries, as limited sets of very specific genetic markers, rather than in categories, as sets of people. Ancestries could, for example, help them make sure the medical genetics projects that compared disease cases with healthy individuals ('controls'), seeking relevant genetic variants possibly linked to the disease, were comparing cases and controls with similar ancestries; this helped avoid making spurious links between the disease and genetic differences that were linked to different ancestries but had nothing to do with the disease. To explore ancestries, however, they employed categorical distinctions that reiterated the pragmatic model of admixture they started with, especially when read from a non-expert perspective. The geneticists were self-reflexive in the sense that they avoided reference to 'race' and were sensitive to its semantic charge; they were less reflexive in assuming that talking in terms of ancestries and certain types of populations would avoid evoking race-like concepts among other observers.

At the same time, these new genetic technologies could also disrupt some familiar socio-cultural categories. Thus geneticists showed that people classified as 'white' in Brazil or reputed to be very light-skinned and European-looking in Colombia had very high levels of Amerindian genetic markers in their mitochondrial DNA, a tiny fraction of the genome that does not influence phenotype. This revelation of hidden ancestry could be taken to undermine 'whiteness' – even if it also reinforced the idea of *mestizaje* and the idea that 'we are all mestizos'. And, especially in Brazil, some geneticists were very adamant that 'race' was not a valid category, thus explicitly challenging the

<sup>19</sup> Carlos D. Bustamante, Francisco M. De La Vega and Esteban G. Burchard, 'Genomics for the World', *Nature*, 475: 7355 (2011), pp. 163–5; Esteban Gonzalez Burchard et al., 'Latino Populations: A Unique Opportunity for the Study of Race, Genetics, and Social Environment in Epidemiological Research', *American Journal of Public Health*, 95: 12 (2005), pp. 2161–8.

common-sense idea of *las tres razas* – even while the basic categories of African, European and Amerindian were being deployed as a way of talking about ancestry. Thus, alongside reiteration of familiar categories, there was also change.

Before looking in more detail at the genomic science, I will outline some background to help understand how blackness and indigeneity figure in this science.

### *Indigeneity and blackness in structures of alterity*

Indigenous and black (or Afro-descendent) people have been located in parallel ways in the dominant political structures and cultural imaginaries of the social formations of colonial and post-colonial Latin America.<sup>20</sup> Both sets of people were seen by the governing classes as an uncivilised, heterodox labour force, located at the bottom of the colonial hierarchies. Post-colonially, both were seen as racially inferior, but also as constituents to the racial mix that made up the new nations. In short, they were both ‘other’ to the elites.

However, black and indigenous people fitted differently into ‘the structures of alterity’ of Latin American societies.<sup>21</sup> For example, indigenous slavery was outlawed in 1542 in the Spanish colonies and in 1570 in Brazil (though this did not stop its continued practice in some areas). In contrast, the enslavement of Africans and their descendants was not seriously challenged until the late eighteenth century – and even then, Brazil maintained legal slavery until 1888. In the Spanish colonies, indigenous people were at least notionally located in a *república de indios*, separate from the *república de españoles*. Outside colonial slavery, black people were more integrated into the growing population of ‘free people of colour’, an intermediate category encompassing everyone who was not officially an *indio*, a slave or a white person.

In post-colonial Latin America, in the last part of the nineteenth century and the early decades of the twentieth, there was a common preoccupation with race and race mixture in relation to progress, modernity, civilisation and education. In Brazil and Mexico especially, but also in Colombia, in the 1920s and 1930s the nation was increasingly presented as being quintessentially mixed, the product of the fusing of *las tres razas*. It was even proud of that fact, and proud too of indigenous and, in Brazil, African heritage.<sup>22</sup> Still, people seen by elites as *indios* and *negros* were generally considered problematic inputs, potentially redeemable through improvement, social hygiene and education, but also ideally to be outnumbered and diluted by European

<sup>20</sup> For a guide to relevant sources, see Wade, *Race and Ethnicity in Latin America*.

<sup>21</sup> *Ibid.*

<sup>22</sup> Appelbaum, Macpherson and Roseblatt (eds.), *Race and Nation in Modern Latin America*.



immigrants of 'superior' racial qualities.<sup>23</sup> In this respect, black and indigenous populations were on a more or less equal footing.

Significant differences were marked by ideologies of *indigenismo* as opposed to what might be called *negrismo*, however. The indio became in many countries an emblem of national identity and roots; indigenous communities might be recognised as legal entities, national days celebrated indigenous roots, and national institutes and academies were set up to study and protect indigenous histories and peoples.<sup>24</sup> Indigenismo often concerned itself more with indigenous history than with contemporary populations. It was an assimilationist and paternalist ideology, although more radical currents also existed that defended contemporary indigenous rights. Either way, it created an important symbolic space for indigeneity in ideas about the nation.

Negrismo was more limited in scope, developing from the 1920s and centring around poetry, music and literature, although the black press of 1920s and 1930s São Paulo espoused a more explicitly civil rights agenda.<sup>25</sup> Blackness figured as an emblem of national identity in a restricted way in Latin America: only in Brazil and Cuba did blackness gain a significant symbolic foothold in this respect. Even so, while Brazil had a government agency devoted to indigenous peoples from 1910, no government entity attended to the interests of black people until the late 1980s.<sup>26</sup>

From the late 1980s, in Brazil, Colombia and Mexico, as in most of Latin America, important multiculturalist reforms have occurred, the product both of black and indigenous resistance and of changing state priorities.<sup>27</sup>

<sup>23</sup> Stepan, *The Hour of Eugenics*.

<sup>24</sup> Peru recognised the indigenous community in 1925; national days for the *indígena* were established in Bolivia (1937), Brazil (1943), Peru (1930) and Uruguay (2000); institutes were set up in Ecuador (1943), Mexico (1940), Guatemala (1945) and Brazil (1910).

<sup>25</sup> See Peter Wade, *Music, Race and Nation: Música Tropical in Colombia* (Chicago, IL: University of Chicago Press, 2000); Richard L. Jackson, *Black Literature and Humanism in Latin America* (Athens, GA: University of Georgia Press, 1988); George Reid Andrews, *Blacks and Whites in São Paulo, Brazil, 1888–1988* (Madison, WI: University of Wisconsin Press, 1991); Robin Moore, *Nationalizing Blackness: Afro-Cubanismo and Artistic Revolution in Havana, 1920–1940* (Pittsburgh, PA: University of Pittsburgh Press, 1997); Hermano Vianna, *The Mystery of Samba: Popular Music and National Identity in Brazil* (Chapel Hill, NC: University of North Carolina Press, 1999); Heidi Carolyn Feldman, *Black Rhythms of Peru: Reviving African Musical Heritage in the Black Pacific* (Middletown, CT: Wesleyan University Press, 2006).

<sup>26</sup> In Colombia, the respective dates are 1960 (although a non-state academic indigenous institute dates back to 1942) and 1993.

<sup>27</sup> Donna Lee Van Cott, *The Friendly Liquidation of the Past: The Politics of Diversity in Latin America* (Pittsburgh, PA: University of Pittsburgh Press, 2000); Deborah Yashar, *Contesting Citizenship in Latin America: The Rise of Indigenous Movements and the Postliberal Challenge* (Cambridge: Cambridge University Press, 2005); Rachel Sieder (ed.), *Multiculturalism in Latin America: Indigenous Rights, Diversity and Democracy* (Basingstoke: Palgrave Macmillan, 2002).

The reforms have altered the way blackness and indigeneity are located in the national frame. Important differences remain, particularly insofar as indigenous peoples have been relatively more successful in gaining state recognition and rights, at least in law. But blackness and indigeneity have also grown closer together: in some countries the two categories have been placed on a similar footing as ethnic minorities within the nation, historically disadvantaged and thus eligible for special political, legal and bureaucratic attention.

Blackness has, in some contexts, become 'indigenised' in the process of official recognition, as black communities have been expected to relate to the state as indigenous communities have done.<sup>28</sup> Blackness still retains a different image from that of indigeneity in that it also figures as an issue of urban and cosmopolitan identity, confronting racism in the labour market and the wider society.<sup>29</sup> But indigenous identity also increasingly goes beyond rural land rights and addresses broader issues of power, racism and markets.<sup>30</sup> Overall, multicultural reforms and associated changes have brought indigeneity and blackness closer together in terms of their location in the structures of alterity: indigenous and Afro-descendent people both figure as ethnic minorities within the nation, even if the more marked otherness of indigeneity persists to some degree.

### *Gender, sex and alterity*

In genomic discourse about Latin American populations, a key theme is that of sexual relations between European men and indigenous and African women. Latin American concepts of *mestizaje* (mixture) necessarily invoke sexual relations between men and women, which involve racial and sex/gender hierarchies.<sup>31</sup> Distinctions made between blackness and indigeneity are thus reflected in ideas about gender and sexuality. This is a complex matter, but here I will draw some broad contrasts to provide background for exploring genomic discourses.<sup>32</sup>

<sup>28</sup> Peter Wade, 'The Colombian Pacific in Perspective', *Journal of Latin American Anthropology*, 7: 2 (2002), pp. 2–33; Mark Anderson, *Black and Indigenous: Garifuna Activism and Consumer Culture in Honduras* (Minneapolis, MN: University of Minnesota Press, 2009); Jan Hoffman French, *Legalizing Identities: Becoming Black or Indian in Brazil's Northeast* (Chapel Hill, NC: University of North Carolina Press, 2009).

<sup>29</sup> Peter Wade, 'Defining Blackness in Colombia', *Journal de la Société des Américanistes*, 95: 1 (2009), pp. 165–84; Michael Hanchard (ed.), *Racial Politics in Contemporary Brazil* (Durham, NC: Duke University Press, 1999).

<sup>30</sup> Nancy Grey Postero, *Now We Are Citizens: Indigenous Politics in Postmulticultural Bolivia* (Stanford, CA: Stanford University Press, 2007); Sian Lazar, *El Alto, Rebel City: Self and Citizenship in Andean Bolivia* (Durham, NC: Duke University Press, 2008).

<sup>31</sup> Diane M. Nelson, *A Finger in the Wound: Body Politics in Quincentennial Guatemala* (Berkeley, CA: University of California Press, 1999).

<sup>32</sup> Peter Wade, *Race and Sex in Latin America* (London: Pluto, 2009).

In simple terms, blackness has been hypersexualised, for both men and women. Indigeneity is less sexualised, especially for men, while for women, sexualisation is associated with images of acculturation, urbanisation and mixture. It has been common to find black sexuality, male and female, portrayed in terms of promiscuity, sexual desirability, animality and lack of inhibition and restraint.<sup>33</sup> These are not the only images in circulation, as older black men and women may be portrayed in more asexual ways (for example, as the faithful family servant). Still, black males have commonly been stereotyped as predatory, hypermasculine, hypersexual and physically well-endowed (even if black men have not been perceived by whites to threaten their purity in quite the same way as in the United States and South Africa, under regimes of strict segregation). Black women have commonly been portrayed as sexually loose and available, hypersexual and desirable. It is often the case that it is the mixed woman, the *mulata*, who is particularly eroticised and, in Brazil and Cuba, made into a national icon of sexuality, being said to combine the sexiness associated with blackness and an aesthetic appeal more linked to whiteness.<sup>34</sup> The *mulato* or 'brown' man may also be eroticised, but in Brazil at least, this is balanced by the well-known and highly sexualised image of the *negão* (the big, strong black man).<sup>35</sup>

Representations of indigenous sexuality in Latin America are somewhat different. Although colonial records show a concern with perceived indigenous male sodomy, the overall image of indigenous men carries a lesser erotic charge than that of black males. In Bolivia, for example, indigenous men are seen as virtually asexual.<sup>36</sup> This pattern is not straightforward: both Hale and Nelson note that, in Guatemala, non-indigenous people may see some indigenous men

<sup>33</sup> See Laura Moutinho, *Razão, 'cor' e desejo: uma análise comparativa sobre relacionamentos afetivo-sexuais 'inter-raciais' no Brasil e África do Sul* (São Paulo: UNESP, 2004); Mara Viveros Vigoya, 'Dionysian Blacks: Sexuality, Body, and Racial Order in Colombia', *Latin American Perspectives*, 29: 2 (2002), pp. 60–77; Wade, *Race and Sex*; Peter Wade, Fernando Urrea Giraldo and Mara Viveros Vigoya (eds.), *Raza, etnicidad y sexualidades: ciudadanía y multiculturalismo en América Latina* (Bogotá: Universidad Nacional de Colombia, 2008).

<sup>34</sup> Vera Kutzinski, *Sugar's Secrets: Race and the Erotics of Cuban Nationalism* (Charlottesville, VA: University Press of Virginia, 1993); Natasha Pravaz, 'Brazilian *Mulattice*: Performing Race, Gender, and the Nation', *Journal of Latin American Anthropology*, 8: 1 (2003), pp. 116–46.

<sup>35</sup> Black and brown men and women respond to these images in complex ways. See Moutinho, *Razão, 'cor' e desejo*; Mara Viveros Vigoya, *De quebradores y cumplidores: sobre hombres, masculinidades y relaciones de genero en Colombia* (Bogotá: Universidad Nacional de Colombia, 2002); Jean Rahier, 'Racist Stereotypes and the Embodiment of Blackness: Some Narratives of Female Sexuality in Quito, Ecuador', in Norman Whitten (ed.), *Millennial Ecuador: Critical Essays on Cultural Transformations and Social Dynamics* (Iowa City, IA: University of Iowa Press, 2003), pp. 296–324.

<sup>36</sup> Andrew Canessa, 'Sex and the Citizen: Barbies and Beauty Queens in the Age of Evo Morales', *Journal of Latin American Cultural Studies*, 17: 1 (2008), p. 53; see also Nelson, *A Finger in the Wound*.

as being bent on a kind of sexual revenge, attempting to reassert their masculinity by dating or having sex with white women.<sup>37</sup> (In North America, too, indigenous men have a more sexualised image.<sup>38</sup>) Yet, overall, the sexual images of indigenous men in Latin America are less erotically charged than those of black men.

For indigenous women, things are more complex. In Ecuador, Rahier found that *indias* were often seen as ‘nonsexual beings who supposedly smell bad’, their bodies represented as ‘unattractively small and deprived of the curves that characterize black women’s bodies in the popular imaginary’.<sup>39</sup> But they may also be seen as sexually available, desirable and subject to predation, especially as domestic servants.<sup>40</sup> In Brazil, a good deal of eroticism surrounded romantic icons such as Iracema, the ‘honey-lipped virgin’ in José de Alencar’s eponymous 1865 novel, or Moema, the indigenous woman in Victor Meirelles’s 1866 oil painting.<sup>41</sup> In the Andes, rather than the india, erotic imagery may be attached to the *chola* – a term often applied to women of indigenous background who have moved to the city, often as domestic servants, or who work in a marketplace.<sup>42</sup> Still, the imagery surrounding indigenous women tends to be less powerfully and pervasively sexualised than that relating to black women. As just one example, some recent sex education programmes in Colombia tended to stereotype indigenous women as timid and black women as promiscuous.<sup>43</sup>

These different emphases in sexual imagery resonate with the differential location of blackness and indigenoussness in structures of alterity. While otherness in general may be subject to sexualisation, it seems that a subaltern otherness that is perceived as accessible and available is more likely to be heavily sexualised. As indigeneity has generally been defined as more physically and culturally separate and distinct within the nation than blackness, this

<sup>37</sup> Nelson, *A Finger in the Wound*, p. 219; Charles R. Hale, *Más que un indio (More than an Indian): Racial Ambivalence and Neoliberal Multiculturalism in Guatemala* (Santa Fe, NM: School of American Research Press, 2006), p. 159.

<sup>38</sup> David Anthony Tyeme Clark and Joane Nagel, ‘White Men, Red Masks: Appropriations of ‘Indian’ Manhood in Imagined Wests, 1876–1934’, in Matthew Basso, Laura McCall and Dee Garceau (eds.), *Across the Great Divide: Cultures of Manhood in the American West* (New York: Routledge, 2000), pp. 109–30. <sup>39</sup> Rahier, ‘Racist Stereotypes’, p. 301.

<sup>40</sup> Hale, *Más que un indio*; Nelson, *A Finger in the Wound*.

<sup>41</sup> Tracy L. Devine Guzmán, ‘“Diacuí Killed Iracema”: Indigenism, Nationalism and the Struggle for Brazilianness’, *Bulletin of Latin American Research*, 24: 1 (2005), p. 101.

<sup>42</sup> Mary Weismantel, *Cholas and Pishtacos: Stories of Race and Sex in the Andes* (Chicago, IL: University of Chicago Press, 2001); Jelke Boesten, ‘Narrativas de sexo, violencia y disponibilidad: raza, género y jerarquías de la violación en Perú’, in Wade, Urrea Giraldo and Viveros Vigoya (eds.), *Raza, etnicidad y sexualidades*, pp. 199–220.

<sup>43</sup> Mara Viveros Vigoya, ‘Políticas de sexualidad juvenil y diferencias étnico-raciales en Colombia’, *Revista Estudios Feministas*, 14: 1 (2006), p. 160.

seems to be one reason behind the different patterns of sexualisation of each category.

### *Genomic Images of Blackness and Indigeneity*

Genetic research in Latin America goes back to the era of eugenics and was interested in processes of mixture and the constituent populations from early on. Particularly from the 1960s, geneticists worked with classical genetic markers (such as blood types and proteins) among indigenous populations to investigate micro-evolutionary processes and biological variation in humans, the migrations that peopled the Americas, and patterns of disease.<sup>44</sup> Researchers studied admixed or mestizo populations in order to explore historical colonisation, make inferences about pre-colonial indigenous populations and track patterns of disease. Populations classified as black or 'African-derived' were also studied to trace processes of colonisation, mixture and biological variability. There was less interest in 'European-derived' populations (people seen as relatively unmixed, such as recent European migrant communities).<sup>45</sup> These same objectives – especially the search for genetic variants associated with complex disorders – fuel the more recent genomic research, which can analyse DNA at the molecular level and which is my focus here. I will look first at how black and indigenous populations figure in this research, before looking at the gendered narratives involved.

Mixture itself is the overriding image that emerges from the genomic research. Geneticists repeatedly quantify degrees of admixture and produce measures of the proportions of Amerindian, European and African ancestry found in sample populations.<sup>46</sup> A version of the Latin American slogan that 'we are all mestizos' was commonly heard in the laboratories where our project did ethnographies. Brazil, Mexico and Colombia are profiled and mapped in terms of their internal variations in this respect, showing which sub-regions have more or less of each ancestral component.<sup>47</sup> In Brazil, Sérgio Pena and colleagues demonstrated that men who classified themselves as white (branco)

<sup>44</sup> Francisco M. Salzano and Sídia Maria Callegari-Jacques, *South American Indians: A Case Study in Evolution* (Oxford and New York: Clarendon and Oxford University Press, 1988).

<sup>45</sup> Sans, 'Admixture Studies'; Salzano and Bortolini, *The Evolution and Genetics of Latin American Populations*.

<sup>46</sup> Although the majority of the admixture was deemed to have occurred in the Americas, it was recognised that some European-African admixture would have occurred pre-conquest in the Iberian Peninsula. Also, while geneticists tend to focus above all on Amerindian, African and European ancestry, there is some interest (usually in medical genetics) in other genetic contributions – for example, in Japanese and Middle Eastern ancestries in Brazil.

<sup>47</sup> Irma Silva-Zolezzi et al., 'Analysis of Genomic Diversity in Mexican Mestizo Populations to Develop Genomic Medicine in Mexico', *Proceedings of the National Academy of Sciences*, 106: 21 (2009), pp. 8611–6; Wang et al., 'Geographic Patterns'.

often revealed traces of African and/or indigenous DNA.<sup>48</sup> Studies of or including African-derived populations also usually showed extensive mixture.<sup>49</sup> The 2007 Afro-Brazilian Roots project, run by BBC Brazil, publicised the ancestry test results of nine celebrities, most of them black or brown, showing that everyone was mixed.<sup>50</sup> As one Brazilian geneticist put it, ‘the *mestiço* is like the white of your eyes; everyone has it’.<sup>51</sup>

Yet within this image of pervasive mixture – which for many geneticists defied any notion of race as a biological entity – categorical separations were routinely made. The key separations referred to Amerindian/indigenous and African-derived populations, treated as distinct from the mestizo majority and often defined by objective criteria that generally sorted people into one of three categories: Amerindian, African-derived or mestizo. In Brazil we also found studies that explicitly targeted brancos; elsewhere, researchers did not use this as a category to define samples, although in Colombia some referred to the so-called Caucasian mestizo.<sup>52</sup> This pattern in itself obeys a tendency to define black and indigenous people as ‘others’ while assimilating whiteness to the mestizo, whether explicitly (Caucasian mestizo, brancos as mixed) or implicitly (by simply not mentioning it).

Indigenous populations were seen as separate and different, both socially and genetically. Indeed, in their overview of Latin American genetics, Salzano and Bortolini chose to cover only non-indigenous populations, as indigenous ones had been dealt with in separate overviews.<sup>53</sup> In Mexico, we found that indigenous populations were sampled as specific populations – identified by location, language, self-identification and perceived cultural traits – and their

<sup>48</sup> Sérgio D. J. Pena, L. Bastos-Rodrigues, J. R. Pimenta and S. P. Bydlowski, ‘DNA Tests Probe the Genomic Ancestry of Brazilians’, *Brazilian Journal of Medical and Biological Research*, 42: 10 (2009), pp. 870–6; Sérgio D. J. Pena, Denise R. Carvalho-Silva, Juliana Alves-Silva, Vânia F. Prado and Fabrício R. Santos, ‘Retrato molecular do Brasil’, *Ciência Hoje*, 159 (2000), pp. 16–25.

<sup>49</sup> Maria Cátira Bortolini, Tania De Azevedo Weimer, Francisco M. Salzano and Loretta B. Freitas, ‘Evolutionary Relationships between Black South American and African Populations’, *Human Biology*, 67 (1995), p. 547; Bortolini et al., ‘African-Derived South American Populations’; Winston Rojas et al., ‘Genetic Make Up and Structure of Colombian Populations by Means of Uniparental and Biparental DNA Markers’, *American Journal of Physical Anthropology*, 143: 1 (2010), pp. 13–20.

<sup>50</sup> See <http://news.bbc.co.uk/1/hi/6284806.stm>. This project explored many dimensions of Afro-Brazilian roots, but with a marked emphasis on genetics (see [www.bbc.co.uk/portuguese/noticias/cluster/2007/05/070427\\_raizesafrobrasileiras.shtml](http://www.bbc.co.uk/portuguese/noticias/cluster/2007/05/070427_raizesafrobrasileiras.shtml)). This reflects not only the public debates in Brazil about raced-based affirmative actions, but also the public dissemination of genetic research, such as Pena et al., ‘Retrato molecular do Brasil’.

<sup>51</sup> Interview with Michael Kent, 2010.

<sup>52</sup> Juan J. Yunis, Emilio J. Yunis, Luis E. Acevedo and David S. Campo, ‘Population Data of Y-STR Minimal Haplotypes in a Sample of Caucasian-Mestizo and African Descent Individuals of Colombia’, *Forensic Science International*, 151: 2–3 (2005), pp. 307–13.

<sup>53</sup> Salzano and Bortolini, *The Evolution and Genetics of Latin American Populations*.

blood and DNA labelled as such in laboratory freezers. For the 'map of the Mexican genome' produced in 2009 by Mexico's new Instituto Nacional de Medicina Genómica (National Institute for Genomic Medicine, INMEGEN), Zapotec samples were used as a proxy for Amerindian ancestry (that is, for parental populations existing five centuries ago) and appear as a reference point against which to measure degrees of Amerindian ancestry in mestizo samples.<sup>54</sup> Of course, the main way to get access to markers of Amerindian ancestry was via present-day populations, but it was striking how little the published research remarked on how five centuries of interaction and colonial domination might have changed the genetic profile of indigenous populations.<sup>55</sup> Present-day indigenous people were, it seems, quite easily taken as proxies for the past.<sup>56</sup>

In standard procedures for this kind of population genetics, only Zapotec individuals who said their grandparents also spoke Zapotec were sampled; this was done in order to weed out recent immigrants to the community, who might have been more mixed. The process makes sense, genetically, if the aim is to make the sample as ancestrally Zapotec as possible, attempting to filter out recent mixtures in order to get a sense of the genetic 'roots' of the community. It is, nonetheless, an imposed definition of the community, which may be at odds with the views of community members about who is Zapotec. Even with this filtering, when clustering analysis of the samples revealed Zapotec individuals whose genetic profiles placed them close to mestizos, they were taken out of the indigenous sample as 'outliers'. Lastly, one Mexican researcher stated that, in principle, any degree of mixture made someone a mestizo, and she also recognised that, strictly speaking, many indigenous people would inevitably be mixed to some degree. Yet the logical conclusion – that all Mexicans, including indigenous ones, are mestizos – was resisted.<sup>57</sup>

<sup>54</sup> Silva-Zolezzi et al., 'Analysis of Genomic Diversity'. INMEGEN was created as one of Mexico's state medical institutes in order to develop the idea of public health policy and medical practice tailored to the genetic profile of the Mexican population, and to address growing health problems such as obesity and diabetes; see López Beltrán (ed.), *Genes (&) mestizos*.

<sup>55</sup> Other methods of acquiring markers of Amerindian ancestry are by using ancient DNA samples recovered from archaeological sites, or by inferring ancient Amerindian genetic markers from the DNA of mestizo populations.

<sup>56</sup> A number of critiques of projects such as the Human Genome Diversity Project and the Genographic Project highlight that the sampling of present-day populations, seen as 'isolated', tends to erase historical change: see Catherine Nash, 'Genetics, Race and Relatedness: Human Mobility and Difference in the Genographic Project', *Annals of the Association of American Geographers*, 102 (2012), pp. 1–18; and Jonathan Marks, "'We're Going to Tell These People Who They Really Are": Science and Relatedness', in Sarah Franklin and Susan McKinnon (eds.), *Relative Values: Reconfiguring Kinship Studies* (Durham, NC: Duke University Press, 2001), pp. 355–83.

<sup>57</sup> Mexican data from fieldwork by Vivette García Deister.

The basic categorical distinction between indigenous and mestizo was retained, both socially and genetically – because indigenous people were different enough, on both counts, to figure as a separate category. The foundational distinction between indigenous and mestizo persisted. The mestizo as a representation of nationhood coincided with the mestizo as a genomic object, which could function in international genetic science as a population useful for tracing disease-causing variants. Both required, by definition, (at least) two founding populations, without which the concept of mestizo made no sense. In this case, contemporary Zapotecs fulfilled the role of one founding population. The coincidence of national icon with genomic object made it easy for the categories to circulate around the network connecting the lab to other areas of public life.

Something similar, but less marked, occurred with black populations, although our research only encountered these subjects of genomic study in Colombia and Brazil, not in Mexico. Latin American black populations were separated off as ‘African-derived’ or some variant of this term. They were identified as such mainly according to criteria defined by the researchers: either they lived in ‘partially isolated villages’, familiar as historically black settlements in Brazil and Venezuela; or they lived in regions reputed to be mainly black, such as Colombia’s Pacific coast region; or, in urban areas, they had African morphological features, evaluated by the researchers; in some urban areas, self-classification as black was also used.<sup>58</sup> These black populations were generally shown to be quite extensively mixed – more so than the Zapotec samples of Mexico – yet they were often not classed as ‘mestizos’. They could easily figure as a separate category – ‘African-derived’ – different from mestizos, despite the fact that genetically they had significant amounts of Amerindian and European ancestry. As with indigenous populations, African-derived populations figured as one of the three basic constituents of the central idea of mixture that operated equally as a key representation of the nation and as a genomic object in the laboratory.

This separation was not as clearly marked for black populations as it was for indigenous ones, however. This was most noticeable in Brazil, where African ancestry is very common. Although some Brazilian studies separated out the African-derived populations from mixed people, others employed the

<sup>58</sup> Bortolini et al., ‘Evolutionary Relationships’; Juan José Builes et al., ‘Analysis of 16 Y-Chromosomal STRs in an African Descent Sample Population of Chocó (Colombia)’, *Forensic Science International: Genetics Supplement Series*, 1: 1 (2008), pp. 184–6; Yunis et al., ‘Population Data of Y-STR Minimal Haplotypes’; Bortolini et al., ‘African-Derived South American Populations’; Juliana R. Pimenta et al., ‘Color and Genomic Ancestry in Brazilians: A Study with Forensic Microsatellites’, *Human Heredity*, 62: 4 (2006), pp. 190–5; Teresinha de Jesus Brabo Ferreira Palha et al., ‘Male Ancestry Structure and Interethnic Admixture in African-Descent Communities from the Amazon as Revealed by Y-Chromosome STRs’, *American Journal of Physical Anthropology*, 144: 3 (2011), pp. 471–8.



categories, derived from the census but used more widely, of black (*preto*), brown (*pardo*) and white (branco) to classify their samples.<sup>59</sup> One study showed that all three groups had rather similar levels of African ancestry, while others showed that brown and even black individuals had a good deal of European ancestry.<sup>60</sup> Here, then, although categorical distinctions were being employed, the idea was to show that these did not correspond to genetic reality: black (and brown) Brazilians were highly mixed, as were white ones. In this sense, 'black' and 'brown' populations were not appearing as a foundational constituent (a role reserved rather for the 'African-derived'), but rather as examples of 'mestizos'.

A second difference between black and indigenous populations was that the parental populations used to infer African ancestry were generally based on samples from Africa itself, readily available in standardised international data sets. Latin American blacks were not suitable to stand in as proxies for African ancestry, because they were deemed to be too mixed. They were African-derived. Contrast indigenous people, who were either indigenous or not: the term 'Amerindian-derived' never appeared. Still, this difference between black and indigenous was not entirely clear-cut: in one Colombian study, a local black population was used as an African-like reference point for other mestizo populations.<sup>61</sup>

The use of present-day African populations to stand in for genetic markers of African populations of five centuries ago, with little attention to possible changes in genetic profile during that time, placed the Africanness of Africa in the past – in the same way as indigeneity and indeed Europeanness were located in the past when present-day populations were used as proxies for ancestral ones. The difference with indigeneity was that the sampled populations standing in for the past were located in the national territory, rather than across the Atlantic. Black populations located in Latin America – as opposed to Africa – were thus less associated with the ancestral past than indigenous populations.

In short, both black and indigenous populations could figure as others in genomic research – even though the data gave a way of thinking of them as mixed, like everyone else. This is not to deny that there is significant genetic structuring of the populations in Brazil, Colombia and Mexico; it is just to highlight how that structured diversity figured in genomic research. The research tended to make both indigenous and black populations appear as

<sup>59</sup> Edward E. Telles, *Race in Another America: The Significance of Skin Color in Brazil* (Princeton, NJ: Princeton University Press, 2004), p. 87.

<sup>60</sup> Pimenta et al., 'Color and Genomic Ancestry in Brazilians'; Sérgio D.J. Pena et al., 'The Genomic Ancestry of Individuals from Different Geographical Regions of Brazil Is More Uniform than Expected', *PLoS ONE*, 6: 2 (2011), p. e17063; Pena et al., 'DNA Tests'.

<sup>61</sup> Rojas et al., 'Genetic Make Up and Structure of Colombian Populations'.

separate, biologically, geographically and, in the case of indigenous populations, even temporally. However, the otherness of black populations was less marked, especially in Brazil.

The particular role of blackness in Brazilian genetics, compared with Colombia, is connected to the way genetic science operates in public discourse in each national context. In Brazil, blackness is an integral part of national urban life to a greater extent than in Colombia, while in Mexico blackness has a very low profile, despite recent attention to the 'third root'.<sup>62</sup> More particularly, some of the genomic research that emphasised the lack of marked genetic differences between blacks, browns and even whites was explicitly used to provide evidence in heated political debates about the appropriateness of race/colour-based affirmative action measures in both higher education and health policy.<sup>63</sup> Geneticist Sérgio Pena testified in the 2010 Supreme Court hearings on the constitutionality of these policies, arguing that it made no sense genetically to conceive of a separable 'black' category as a target for either university admissions quotas or a specific health programme.<sup>64</sup>

In Colombia, although large numbers of black people live in the major cities, blackness is very strongly associated with the Pacific coastal region, an area that is generally said to be 80–90 per cent Afro-Colombian and that is generally seen from the perspective of the rest of the country as poor, underdeveloped and highly distinctive.<sup>65</sup> In addition, although the law contains affirmative action measures, these fall short of race-based quotas for university places and have not generated the same heated public debates as in Brazil. It makes sense, then, that blackness appears as more set apart in genomics in Colombia than it does in Brazil.

<sup>62</sup> Laura A. Lewis, *Chocolate and Corn Flour: History, Race and Place in the Making of 'Black' Mexico* (Durham, NC: Duke University Press, 2012).

<sup>63</sup> Marcos Chor Maio and Simone Monteiro, 'Política social com recorte racial no Brasil: o caso da saúde da população negra', in Marcos Chor Maio and Ricardo Ventura Santos (eds.), *Raça como questão: história, ciência e identidades no Brasil* (Rio de Janeiro: Editora FIOCRUZ, 2010), pp. 285–314.

<sup>64</sup> Sérgio D. J. Pena and Maria Cátira Bortolini, 'Pode a genética definir quem deve se beneficiar das cotas universitárias e demais ações afirmativas?', *Estudos Avanzados*, 18: 50 (2004), pp. 31–50; Ricardo Ventura Santos et al., 'Color, Race and Genomic Ancestry in Brazil: Dialogues between Anthropology and Genetics', *Current Anthropology*, 50: 6 (2009), pp. 787–819; Guilherme Suarez-Kurtz, 'Pharmacogenetics in the Brazilian Population', in Sahra Gibbon, Ricardo Ventura Santos and Mónica Sans (eds.), *Racial Identities, Genetic Ancestry, and Health in South America: Argentina, Brazil, Colombia, and Uruguay* (Basingstoke: Palgrave Macmillan, 2011), pp. 121–35.

<sup>65</sup> Peter Wade, *Blackness and Race Mixture: The Dynamics of Racial Identity in Colombia* (Baltimore, MD: Johns Hopkins University Press, 1993); Wade, 'Defining Blackness in Colombia'.

*Genomics, Race and Gender*

As mentioned at the outset, genomic researchers have frequently highlighted the 'sexual asymmetry' of early colonial mating patterns, which DNA evidence revealed.<sup>66</sup> A brief explanation is needed of this evidence.<sup>67</sup> Geneticists interested in ancestry often examine two specific 'uniparental' parts of the whole genome of an individual. One is the mitochondrial DNA (mtDNA), a type of DNA that is inherited only via the mother and that is not subject to processes of recombination or 'shuffling' of the genetic material as it is transmitted. Occasional mutations occur in the mtDNA and are passed on from the person in whom the mutation occurred down the maternal line to her offspring. The presence of these mutations allows an individual to be connected back, via an unbroken unilinear maternal ancestral connection, to the originator of the mutation. Assumptions about how often mutations occur permit calculations of when the originator lived, and data on the geographical distribution of people with the mutation permit inferences about where the mutation originated in the world and how its carriers migrated. The second type of genetic material is a non-recombining form of DNA that is carried on the Y chromosome (and thus only passed on in the paternal line, whereas men carry mtDNA but cannot pass it on). Using mutations, the same kind of deductions can be made as with mtDNA about the geographical origins of paternal genetic lineages.

In a present-day individual, the presence of Amerindian markers in his or her matrilineage does not necessarily mean the person has a significant amount of indigenous ancestry: it merely means that, among all the thousands of ancestors that he or she has – going back only a few hundred years – one of them was an indigenous woman who happens to be connected to that person in an unbroken line of descent. Thus, a population made up of people whose complete genomes show relatively little indigenous ancestry may still have very high levels of indigenous (or African) markers in its matrilineages. One mestizo population in northern Colombia was estimated to have about 80 per cent European ancestry in the autosomal DNA (the main bulk of a person's DNA, inherited in recombined form via both parents – 'biparental' – and thus a place to measure overall ancestry), while about 90 per cent of the matrilineages found in the mtDNA were of Amerindian origin.<sup>68</sup>

<sup>66</sup> Salzano and Bortolini, *The Evolution and Genetics of Latin American Populations*, p. 309.

<sup>67</sup> Mark D. Shriver and Rick A. Kittles, 'Genetic Ancestry and the Search for Personalized Genetic Histories', in Koenig, Lee and Richardson (eds.), *Revisiting Race in a Genomic Age*, pp. 201–14.

<sup>68</sup> Carvajal-Carmona et al., 'Strong Amerind/White Sex Bias'; Bedoya et al., 'Admixture Dynamics in Hispanics'.

The genetic research we studied looked at heritage as revealed through autosomal DNA (which is what counts when matching disease cases and healthy controls in medical genetic studies) and heritage revealed through uniparental analysis, but it is the latter which allows historical arguments to be made about encounters between populations and between men and women. This uniparental genetic analysis reveals hidden ancestral connections and uncovers admixture in people who might seem quite ‘white’ or ‘European’, but it does so by picking out very specific parts of the DNA and highlighting very selected and distant connections.<sup>69</sup> Because it focuses on matrilineal and patrilineal connections, it also allows inferences to be made about sexual relations between men and women, as mtDNA travels through acts of mothering and Y-chromosome DNA through fathering.<sup>70</sup>

The first thing to notice about these uniparental genetic tests is that they foreground early colonial sexual encounters, which they are able to do precisely because they permit the geneticist to trace historically very distant connections. The concrete data refer to Amerindian or African genetic lineages in the mtDNA and European genetic lineages in the Y-chromosome DNA – that is, to the presence of particular genetic mutations. But the inference drawn is about sexual encounters between actual people who were carriers of these mutations – indigenous or African women and European men – when they first met each other. These encounters are described in technical terms such as ‘asymmetric mating’ and ‘introgression of [European] genes through native women’.<sup>71</sup> Popular accounts make this more explicit by talking about ‘indigenous mothers and European fathers’. The use of kinship terms conjures up an image of family which may or may not have been appropriate, depending on how much coercion was being used; certainly some activists from Brazil’s black movement have criticised the image of apparently harmonious sexual interactions created by some geneticists’ accounts.<sup>72</sup>

The important point, however, is that these early encounters would soon have given rise to offspring who likely would have been perceived or classified

<sup>69</sup> Kim TallBear, ‘Narratives of Race and Indigeneity in the Genographic Project’, *Journal of Law, Medicine & Ethics*, 35: 3 (2007), pp. 412–24; Nadia Abu El-Haj, *The Genealogical Science: The Search for Jewish Origins and the Politics of Epistemology* (Chicago, IL: University of Chicago Press, 2012).

<sup>70</sup> Amade M’charek, *The Human Genome Diversity Project: An Ethnography of Scientific Practice* (Cambridge: Cambridge University Press, 2005), pp. 120–47; Catherine Nash, ‘Gendered Geographies of Genetic Variation: Sex, Gender and Mobility in Human Population Genetics’, *Gender, Place and Culture*, 19: 4 (2012), pp. 409–28.

<sup>71</sup> Maria Cátira Bortolini et al., ‘Ribeiro’s Typology, Genomes, and Spanish Colonialism, as Viewed from Gran Canaria and Colombia’, *Genetics and Molecular Biology*, 27 (2004), pp. 1–2.

<sup>72</sup> Ricardo Ventura Santos and Marcos Chor Maio, ‘Race, Genomics, Identities and Politics in Contemporary Brazil’, *Critique of Anthropology*, 24: 4 (2004), p. 365.

not as European, African or indigenous, but instead as mestizos of one description or another (or perhaps as locally born 'whites' and 'blacks', who were neither European nor African). Thus the vast majority of the sexual encounters and mixings that took place after the first period of sexual relations, and that gave rise to the present-day populations of mixed people, would have been between people that both historians and geneticists might call mestizos. However, the geneticists' focus on the mtDNA and the Y-chromosome DNA spotlights the initial formative role played by the 'original' parental populations – one native and two overseas. The data refer to Amerindian, African and European ancestry – that is, molecular lineages – but the ancestry is taken to indicate matings between kinds of people (Europeans, Africans and Amerindians), populations of distinct geographic origins that were soon to be overtaken in demographic importance by the mixed offspring they created. Yet, by selecting out unilineal ancestries, this kind of genetic analysis casts into sharp relief the mixings of categories, labelled in terms of radical, continental difference and understood as the foundational acts of the elemental mestizaje that encapsulated the essence of what would become Latin American nations. All the subsequent mixings between people who were not assignable to one of these foundational categories are placed in the background. The overall effect is to highlight mixture between populations seen as radically different and thus to highlight mixture itself. As in my previous argument, the key notion of an admixed population as simultaneously a national icon and a genomic object is reinforced by this type of analysis.

In this sense, indigeneity and blackness are placed on an equal footing: both are cast as parental, original populations which contributed to the mix by supplying females with whom the European colonists had sex. However, the two categories are also differentiated in a way that highlights the 'indigenous mother'. For a series of samples of mestizo populations, Amerindian lineages in the mtDNA generally clearly outweigh African lineages, except in a Brazilian sample where the Amerindian only just outweighs the African on average.<sup>73</sup> Even in Puerto Rico, where the indigenous population disappeared

<sup>73</sup> The study by Rojas et al. included 15 Colombian urban populations classified as mestizo: mtDNA analysis showed an average of 6 per cent African and 83 per cent Amerindian ancestry. See Rojas et al., 'Genetic Make Up and Structure of Colombian Populations'. The study by Wang et al. sampled 'mestizos' in 13 locations spread across Latin America: see Wang et al., 'Geographic Patterns'. These data also appear in an overview by Andrés Ruiz Linares, 'Human Genetic Variation: Americas', in Aravinda Chakravarti (ed.), *Who Are We? Human Diversity and Race from a Contemporary Genetics Perspective* (forthcoming). The mtDNA analysis reported in this overview shows a greater proportion of Amerindian than African ancestry for all samples, although this is only marginally so for the sample from southern Brazil (Rio Grande do Sul). (These precise percentage measurements of ancestry are estimates and are influenced by the nature of the sample taken and the kind of genetic markers and reference populations that are used for the analysis.)

early (at least in name) and slavery persisted until 1873, the percentage of Amerindian ancestry in the sampled populations' mtDNA is reported to be 61 per cent compared to 27 per cent African ancestry.<sup>74</sup> Only in a sample of 'whites' from the north-east region of Brazil (a historically black area) were African matrilineages reported to clearly outweigh Amerindian ones, by 44 to 22 per cent.<sup>75</sup>

These results depend in part on the samples used, however; other samples show different patterns. A study which included people classified by researchers as 'black' and 'admixed (Mulatto)', from Salvador, Brazil, showed 90 per cent African matrilineages.<sup>76</sup> In the Puerto Rican study, a sample from the historically black village of Loiza showed 79 per cent African ancestry in the mtDNA. An 'Afro-Colombian' sample included in the study by Rojas et al. showed 53 per cent maternal African ancestry.<sup>77</sup> Such exceptions indicate that regions with a strong historical black presence are likely to show higher amounts of African matrilineages. But the key point is that, as noted above, this kind of mtDNA analysis reaches back to the *early* unilineal maternal ancestors of the mestizo people who form many of the samples. These data indicate that the earliest sexual unions were between European men and indigenous women, but they say little about subsequent sexual unions, in which Afro-descendent women are likely to have played a greater role.<sup>78</sup> The use of mtDNA data thus tends to make indigenous women appear more consistently as ancestral 'mothers', even in countries where a black presence has a marked history. A subtle difference emerges between indigenous and black women which is a function of the way the genetic technologies select particular ancestral connections.

The final feature of these uniparental data on mestizo populations is that they highlight certain sets of actors and push others into the shadows. Indigenous and African men and European women generally make infrequent appearances. European ancestral markers are relatively infrequent in the mtDNA data – except in Brazil, where they account for about a third of the lineages on average and up to 85 per cent in some areas in the south of

<sup>74</sup> Juan C. Martínez-Cruzado et al., 'Reconstructing the Population History of Puerto Rico by Means of MtDNA Phylogeographic Analysis', *American Journal of Physical Anthropology*, 128: 1 (2005), pp. 131–55.

<sup>75</sup> Alves-Silva et al., 'The Ancestry of Brazilian MtDNA Lineages'. The criteria for 'white' in this study are not defined, but many Brazilian studies rely on self-classification, making reference to the standard census categories.

<sup>76</sup> Bortolini et al., 'African-Derived South American Populations'.

<sup>77</sup> Rojas et al., 'Genetic Make Up and Structure of Colombian Populations'.

<sup>78</sup> This is suggested by X-chromosome analysis, which highlights female contributions as mothers contribute two X-chromosomes to offspring while men only contribute one. X-chromosome data for some mestizo samples indicate the significance of African ancestry; see Wang et al., 'Geographic Patterns'.

the country, which received large amounts of European migrants in the nineteenth century. Nevertheless, the research papers barely mention these lineages or the European women associated with them, preferring to emphasise the finding that ‘the first Brazilians were born mostly from the union between European males and Amerindian or African females’.<sup>79</sup>

Likewise, Amerindian and African patrilineages are generally heavily outweighed by European ones in the Y-chromosome DNA of mestizo populations. For Brazil, this is partly because the samples used are in fact often of people classified as ‘white’, among whom 98 per cent of patrilineages are European, according to one study.<sup>80</sup> In Colombia, some samples are of people known to be at the lighter-skinned end of the mestizo continuum, such as the population of Medellín in north-west Colombia, where patrilineages are 94 per cent European.<sup>81</sup> A regionally more varied sample of Colombian mestizo populations still showed 79 per cent European ancestry for Y-chromosome DNA, with 9 per cent African and 12 per cent Amerindian contributions.<sup>82</sup> Thus, when looking at populations classified as mestizo and white, the image of the indigenous or African ‘father’ hardly appears: the agency of indigenous and black masculinity is more or less erased, giving pride of place to the European male as sexually active. This fits with the dominant image of the indigenous male as asexual, noted above, but it hardly fits with the image of the hypersexual black male – on which I will say more later.

The apparent disappearance of indigenous and black men depends a good deal on which populations are under examination, however. Some samples classed as mestizo show more Amerindian patrilineages: for example, those from areas of southern or northern Chile, historically linked to indigenous peoples, show proportions of over 50 per cent; while samples from the Caribbean region of Colombia, which has a history of extensive mixture with important black and indigenous participation, are reported to have over 30 per cent Amerindian ancestry on the Y chromosome.<sup>83</sup> Likewise, this Colombian region has populations with 25 per cent African patrilineages; European contributions are down to about a third of the total.<sup>84</sup> Yet the overwhelming indication from the genetic research is that of European men having sex with indigenous and, in the Brazilian studies, African women.

If the focus shifts to ‘African-derived’ populations, the picture also changes, but in contradictory ways (demonstrating, by the way, the instability of the distinction between ‘mestizo’ and ‘African-derived’). One sample of Brazilian

<sup>79</sup> Marrero et al., ‘Pre- and Post-Columbian Gene and Cultural Continuity’, p. 168.

<sup>80</sup> Carvalho-Silva et al., ‘The Phylogeography of Brazilian Y-Chromosome Lineages’.

<sup>81</sup> Bedoya et al., ‘Admixture Dynamics in Hispanics’.

<sup>82</sup> Rojas et al., ‘Genetic Make Up and Structure of Colombian Populations’.

<sup>83</sup> On Chile, see Ruiz Linares, ‘Human Genetic Variation’.

<sup>84</sup> Rojas et al., ‘Genetic Make Up and Structure of Colombian Populations’.

*quilombos* showed 54 per cent African patrilineages and 41 per cent European, but another revealed proportions of African lineages that varied from 5 to 38 per cent.<sup>85</sup> These figures produced an interesting effect. In the first case, the authors explained their findings by emphasising that 'European men preferentially mated with African and Amerindian women' and in the second they did so by similarly highlighting 'the directional mating between European males and African females'.<sup>86</sup> That is, a very wide range of African contributions was accounted for in the same way: in both cases the sexual agency of European men was foregrounded, and there was no mention of African or black men nor of the mixing between black and indigenous people with relatively little European input, which was undoubtedly very common in many areas of Colombia and Brazil (and Mexico too).

A similar effect could be seen in a wider study of African-derived populations, which encompassed previous maroon slave settlements in Venezuela and Brazil as well as the Brazilian cities of Salvador, Ribeirão Preto and Porto Alegre. In this study, individuals were chosen by researchers according to their morphological characteristics, selecting 'persons who presented no indications of admixture [with non-African ancestry]' in Ribeirão Preto and both these and people 'classified as admixed (Mulatto)' in the other cities.<sup>87</sup> In some of the populations, African ancestry was predominant in the Y-chromosome DNA (55–96 per cent) and also the mtDNA (58–82 per cent). The sample from urban Ribeirão Preto was one of the most African in both respects (96 and 82 per cent respectively), while the Salvador sample, of black and mixed people, also showed 55 per cent paternal and 90 per cent maternal African lineages. It is also notable that, in a couple of the previous maroon settlements, the percentage of Amerindian patrilineages was quite high (20–30 per cent). Yet the discussion of these cases simply consisted of statements such as 'No evidence for asymmetrical matings in relation to sex and ethnic groups could be found.' It was noted that these instances departed from the 'most consistent finding', which was 'the introduction of European genes through males'. The only specific mention of the 'Amerindian male component' was that it was 'not detectable' in

<sup>85</sup> Quilombos are notionally settlements founded by fugitive slaves, but nowadays the term may include settlements that have little historical relation to escaped slaves.

<sup>86</sup> Palha et al., 'Male Ancestry Structure', p. 477; Guilherme Galvarros Bueno Lobo Ribeiro et al., 'Afro-Derived Brazilian Populations: Male Genetic Constitution Estimated by Y-Chromosomes STRs and AluYAP Element Polymorphisms', *American Journal of Human Biology*, 21: 3 (2009), p. 355.

<sup>87</sup> Bortolini et al., 'African-Derived South American Populations', p. 552. These are imposed criteria which obey the researchers' perceptions of appearance and ancestry and which may be different from others' perceptions in a country in which such classifications are quite varied. Not all studies use such objectivist criteria; see Santos et al., 'Color, Race and Genomic Ancestry'.



Salvador and Porto Alegre. The conclusion drawn – that ‘results differ when diverse populations are considered’ – is unquestionable, but the overall effect of highlighting ‘the most consistent finding’ is to place African/black and indigenous men in the background.<sup>88</sup>

*Conclusion: Blackness and Indigeneity in Genomics and Multiculturalism*

Since the 1980s, multiculturalism has created decentring forces in Latin American nations. Increasing political and policy attention has turned to indigenous and black groups, increasingly seen together as ethnic minorities. Recent genomics is interesting because of the way it inflects these forces. A key feature of this science is the focus on the nation as fundamentally mestizo; this emerges from the mutually reinforcing coincidence of the mestizo as a national icon and a genomic object. This does not mean that black and indigenous populations are ignored – far from it, recent genomics includes much work on indigenous populations in particular, continuing a tradition that goes back many decades. But the genomic objectification of these peoples does not coincide in the same way with a role as national icon; they are often dealt with as separate categories, foundational to but also not fully part of the mixed majority, albeit impacted by it.

In one sense, this fits with a multiculturalist politics that also carves out separate spaces for each ‘culture’. However, multiculturalism often refers to the minorities as the possessors of ‘culture’, while the centre ground of dominant mixedness is the unmarked category, taken for granted. Thus the 2005 Colombian census asked people to say if they were Afro-Colombian, indigenous (or Rom) or ‘none of the above’.<sup>89</sup> In contrast, the effect, if not the explicit intention, of genomic science can be seen as a powerful recentring of the mestizo as the heartland of the nation. Whereas multiculturalism is all about the minorities, this genomic science refocuses on the mixed majority, with the minorities present but somehow outside that majority. Present-day indigenous and even on occasion local black populations may be used to represent ancestral parental populations, effectively associating them with the past. At the same time, research on ancestry casts blackness and indigeneity in slightly different lights, consistent with established patterns: both are seen as other, but indigenous people are much more thoroughly so than black people and their categorical separation is more pronounced. This goes against the grain of attempts in multiculturalist approaches to see black and indigenous people as being on the same footing and instead reinforces long-standing

<sup>88</sup> Bortolini et al., ‘African-Derived South American Populations’, pp. 558–60.

<sup>89</sup> See [www.dane.gov.co/index.php?option=com\\_content&view=article&id=307&Itemid=124](http://www.dane.gov.co/index.php?option=com_content&view=article&id=307&Itemid=124).

tendencies, still present covertly in multiculturalism itself, to locate them differently in the structures of alterity.

Genomic research also consistently reproduces the long-standing foundational narrative in which European men have sex with indigenous and, to a lesser extent, African women. As I have shown, the way this is done telescopes history and privileges that original encounter. It reinforces the message that Latin American nations were founded on a process of mixture, seen as having fundamentally moulded the shape of history and society. It emphasises the sexual agency of European men and places European women in the background. Again, blackness and indigeneity figure in subtly different ways here. The research tends to cast indigenous women more centrally as ‘mothers of the nation’ than it does African/black women, although this effect is less marked in Brazil, where African women also figure quite strongly.

On the other hand, there is some parity in the erasure of the sexual agency of both African/black and indigenous men. The difference is that this fits with established, although not unequivocal, images of indigenous men as asexual, while it conflicts with dominant images of black men as hypersexual. This is difficult to interpret and one must be cautious with pop psychological explanations, but it is worth at least suggesting that scientific research in which black male sexuality is placed in the shadows – indeed, effectively erased – may have interesting resonances in societies in which this sexuality can be experienced as a threat by non-black men. Moutinho shows that, contrary to the image of the white male as active sexual agent – whether civilising or brutish – that was purveyed in many classic Brazilian twentieth-century history and social science texts, the present-day image of the white Brazilian man is rather ‘opaque’. Moutinho’s interviewees of different social classes in Rio de Janeiro had little to say about his sexuality, which was perceived as neutral, in contrast to the sexuality of black and brown males, which was the subject of much elaboration, in accordance with expected stereotypes and with some backing from brown and black men themselves.<sup>90</sup> At the same time, genomic research is restating the founding sexual agency of the European male – and thus implicitly ‘white’ men in Latin America – while consigning black male sexuality to the background. Clearly, this is not an explicit agenda for geneticists; they are trying to work out population histories. Yet it is noticeable that, even when the genetic data invite some reflection on black (and indigenous) male sexual agency, this invitation is passed by in favour of

<sup>90</sup> Moutinho, *Razão, ‘cor’ e desejo*. See also Osmundo de Araújo Pinho, ‘Etnografias do brau: corpo, masculinidade e raça na reafrikanização em Salvador’, *Revista Estudos Feministas*, 13: 1 (2005), pp. 127–45; Viveros Vigoya, ‘Dionysian Blacks’; and Joane Nagel, *Race, Ethnicity, and Sexuality: Intimate Intersections, Forbidden Frontiers* (Oxford: Oxford University Press, 2003).

an emphasis on European male sexual agency. This aspect of the argument requires more research, but it suggests interesting avenues.

The genomic research explored here has to be seen in the context of recent debates about the influence on social life of new bio-technological and bio-scientific developments. In the social sciences there has been extensive commentary on the tendencies of these developments to biologise and geneticise ideas of social life and relations, leading people to conceive of themselves, others and social relations in an increasingly biological idiom, creating new and more pervasive forms of biological citizenship, and generating new economic regimes of bio-value and political regimes of bio-security.<sup>91</sup> While many commentators argue that there are no simple one-way processes at work and that techno-scientific developments are always socialised in complex ways, there can be little doubt that genetic discourses figure increasingly prominently in contemporary social worlds.<sup>92</sup>

In Brazil, as I mentioned above, geneticists have proffered their results as evidence for policy-makers concerned with affirmative action programmes. In accordance with my argument about the overall message of genomic research on ancestry, some geneticists, including Pena, have sided publicly with positions arguing that such programmes risk increasing and polarising race-based divisions.<sup>93</sup> In Brazil, too, the publication in a popular science journal of the *Retrato molecular de Brasil* was widely reported, as was the BBC Brazil project on the ancestry of mostly Afro-Brazilian celebrities (for which the genetics tests were done by Pena's team), which revealed their mixed ancestry.<sup>94</sup> Pena's company, Laboratório Gene, also offers the kind of direct-to-consumer ancestry tests that have become popular in the United States and Europe.<sup>95</sup> In Colombia, as noted at the start of this article, Emilio Yunis published a book aimed at a general audience, and his work has been reported on in the press.<sup>96</sup> The work of the Colombian Expedición Humana (a large-scale mapping of the cultural and biological diversity of the

<sup>91</sup> See the literature cited in note 19.

<sup>92</sup> Franklin, 'Biologization Revisited'; Alondra Nelson, 'The Factness of Diaspora: The Social Sources of Genetic Genealogy', in Koenig, Lee and Richardson (eds.), *Revisiting Race in a Genomic Age*, pp. 253–68; Wade (ed.), *Race, Ethnicity and Nation*; Celeste M. Condit, Roxanne L. Parrott, Tina M. Harris, John Lynch and Tasha Dubriwny, 'The Role of "Genetics" in Popular Understandings of Race in the United States', *Public Understanding of Science*, 13: 3 (2004), pp. 249–72.

<sup>93</sup> Peter Fry, Yvonne Maggie, Simone Monteiro and Ricardo Ventura Santos (eds.), *Divisões perigosas: políticas raciais no Brasil contemporâneo* (Rio de Janeiro: Civilização Brasileira, 2007).  
<sup>94</sup> Pena et al., 'Retrato molecular do Brasil'.

<sup>95</sup> Verlan Valle Gaspar Neto and Ricardo Ventura Santos, 'Biorrevelações: testes de ancestralidade genética em perspectiva antropológica comparada', *Horizontes Antropológicos*, 35 (2011), pp. 227–55.

<sup>96</sup> Yunis Turbay, *Por qué somos así?*. See also <http://especiales.universia.net.co/galeria-de-cientificos/ciencias-de-la-salud/emilio-yunis-turbay.html>.

population) in the 1990s also attracted a good deal of coverage.<sup>97</sup> In Mexico, the first major task of INMEGEN was to produce a ‘Map of the Genome of Mexican Populations’, which was widely publicised in 2009; INMEGEN also has a special unit devoted to public dissemination of its work.<sup>98</sup>

The longer-term impacts of the increasing dissemination of genomic knowledge about ancestry and nation in Latin America are not yet fully delineated, but there can be no doubt that this knowledge is entering the public domain and putting into circulation particular images of the nation and its human character, which come validated with the authority of science. Overall, the image that this science conveys is one of the nation as mestizo, with black and indigenous populations located, in their specific ways, as others.

### *Spanish and Portuguese abstracts*

*Spanish abstract.* La genómica en Latinoamérica ha investigado la ‘ancestría’ africana, amerindia y europea de las poblaciones locales. Este artículo explora cómo la indigeneidad y la negritud figuran en la ciencia genómica a la luz de representaciones previas y actuales de los y las indígenas y afrodescendientes. Tales categorías han sido ubicadas como ‘los otros’ en América Latina, aunque han ocupado lugares diferentes en las ‘estructuras de alteridad’. Examino brevemente estas similitudes y diferencias en los periodos colonial y republicano y en las recientes reformas multiculturales. También exploro la imaginería generizada y sexualizada que rodea a cada concepto, antes de examinar en detalle cómo la negritud y la indigeneidad aparecen en forma generizada dentro de la investigación genómica relacionada con los mestizajes y la ancestría en Brasil, Colombia y México. Concluyo que, en el contexto del multiculturalismo, la genómica trabaja para recentrar los imaginarios de la nación alrededor del mestizaje y la mezcla, al mismo tiempo que ubica a la negritud e indigeneidad, en formas sexualizadas y generizadas, como maneras diferentes de otredad.

*Spanish keywords:* raza, mestizaje, genética, género, sexualidad, mestizos, Brasil, Colombia, México

*Portuguese abstract.* Pesquisas genômicas na América Latina investigam a ‘ancestralidade’ africana, ameríndia e europeia das populações locais. O artigo explora como a indianidade e a negritude figuram na ciência genômica sob a ótica de representações prévias e atuais de pessoas afrodescendentes e indígenas. Estas categorias foram retratadas como ‘outras’ na América Latina, porém, têm ocupado posições diferentes nas ‘estruturas da alteridade’. Analiso brevemente essas semelhanças e diferenças durante os períodos colonial e republicano e durante reformas multiculturalistas

<sup>97</sup> Carlos Andrés Barragán, ‘Molecular Vignettes of the Colombian Nation: The Place(S) of Race and Ethnicity in Networks of Biocapital’, in Gibbon, Ventura Santos and Sans (eds.), *Racial Identities, Genetic Ancestry, and Health in South America*, pp. 41–68. See also [www.javeriana.edu.co/Humana/humana.html](http://www.javeriana.edu.co/Humana/humana.html).

<sup>98</sup> See [www.inmegen.gob.mx](http://www.inmegen.gob.mx).

recentes. Considero a imagética sexualizada e baseada em estereótipos de gênero que envolve cada conceito, antes de examinar detalhadamente como a negritude e a indianidade figuram em formas relacionadas ao gênero em pesquisas científicas de genômica acerca da miscigenação da descendência no Brasil, Colômbia e México. Concluo que, no contexto do multiculturalismo, a genômica trabalha para mais uma vez centrar os imaginários sobre as nações em torno da mestiçagem e mistura, enquanto a negritude e a indianidade são representados de formas sexualizadas e relacionadas ao gênero, como diferentes tipos de outros.

*Portuguese keywords:* raça, mestiçagem, genética, gênero, sexualidade, mestiços, Brasil, Colômbia, México