

# Genetic research in mestizo nations

*Peter Wade* reveals the temptation to read too much into genetic data in Latin American countries



Peter Wade is Professor of Social Anthropology at the University of Manchester. He held a British Academy Wolfson Research Professorship from 2013 to 2016.

Genetic scientists in Latin American countries have long been interested in measuring the amount of biological mixture in their national populations. The basic techniques for calculating how much genetic ancestry a mixed population had inherited from each of two previously separated parental populations were laid out by the German mathematician Felix Bernstein in the 1930s, and were used in Brazil in the early 1940s to work out how much African and European 'blood' had contributed to sample mestizo (mixed) populations. The method was later refined to allow calculations for 'trihybrid' populations, formed from mixtures of European, African and Amerindian ancestries.

Why were these scientists concerned to measure mixture? In the 1940s, Colombian anthropologists considered their work a contribution to 'racial studies', that is a description of human biological diversity based on the idea that this could be conceived in terms of a division into a small number of original or underlying 'races'. Already at that time, the viability of this conceptual apparatus was under fire from scientists who contended that human physical diversity could not be divided up in this simple way – not to mention the opprobrium that was increasingly being heaped on the idea that human races were naturally ordered into a biological, moral and intellectual hierarchy, with white Europeans at the top. Still, while the idea of hierarchy was becoming politically toxic and scientifically unlikely, the basic idea of 'race' as a concept to classify human biological variation remained in play for some decades.

The Colombian anthropologists had a further aim, which was linked to a concept of the nation that had emerged from the mid-19th century, not only in Colombia, but in many other Latin American countries. This concept depicted the nation as a progressive mixture

of three original populations – European, African and indigenous, with the balance varying according to the country in question. The mixture – *mestizaje* in Spanish, *mestiçagem* in Portuguese – was biological and cultural, and was depicted as having been driven from the outset by whiter, dominant males having sexual relations with subordinate indigenous and African women: these were the founding 'fathers' and 'mothers' of the nation. *Mestizaje* was often seen as progressive in nature: by transcending racial difference, it produced a democratic and modern society; some commentators also thought *mestizaje* had a natural tendency towards whiteness, because of the supposed superiority of white 'blood'. This view was counter-intuitive in the context of the European racial science and eugenics of the late 19th and early 20th centuries, which held that 'miscegenation' was a degenerative process. Some Latin American thinkers agreed and despaired of the prospects for their nations; many

others, wary of condemning their populations to inferiority, qualified theories of degeneration by seeing mixture as potentially constructive. Nevertheless, all elites agreed on the desirability of encouraging European immigration, to introduce valued aptitudes and habits, but also 'superior' breeding stock; elites also

saw nothing contradictory about discriminating against black, indigenous and mestizo individuals, while simultaneously lauding *mestizaje* in abstract terms.

In this frame, the Colombian anthropologists were using studies of blood types among indigenous groups to assess how biologically mixed or 'pure' they were, and how biological mixture squared with cultural assimilation. The nation was moving towards ever greater mixture and modernity, and unassimilated indigenous groups were a problem. On the other hand, indigenous groups were also seen as vulnerable and under threat from *mestizaje*, which would destroy them; in that sense, these studies were 'salvage anthropology', collecting data which were disappearing. These contradictory tendencies obeyed the common co-existence in many Latin American coun-

**Mestizaje was seen as progressive: it produced a modern society**

tries of ideologies of *mestizaje* with those of *indigenismo*, which lauded the nation's indigenous heritage as a source of authenticity and distinctiveness – although mostly in the past tense, valuing ancient civilisations, while contemporary indigenous populations should be shepherded protectively towards incorporation.

### Genomic studies of diversity in Latin America

Fast forward some five or six decades. Genetic science has progressed in leaps and bounds and, in the wake of the Human Genome Project, has become genomic science, characterised by the ability to sequence whole genomes with increasing speed and economy, to produce calculations of ancestral mixture for individuals not just populations, based on the analysis of not just a handful of blood markers, but hundreds and even millions of genetic variants. The rationale for this science is predominantly medical – human health and well-being has always been a central concern of genetics, even in the days of eugenics, and many genetic studies in post-war Latin America had medical aims at their core – and the search is on to locate genetic variants associated with ‘complex disorders’, such as diabetes, obesity, cardio-vascular disorders, which have mixed genetic and environmental causes. The measurement of degrees of mixture in ‘admixed’ populations (ones formed by the relatively recent encounter of populations with little previous gene exchange) now has a medical purpose – for example, to facilitate ‘admixture mapping’ and control for the confounding effects of different degrees of admixture in samples of people with a disorder who are compared with healthy controls.<sup>1</sup>

As before, however, genetic data about degrees of mixture can circulate through diverse networks of knowledge and discourse, becoming entangled in ideas about the nation and its past, present and future. Geneticists in Latin America form part of international collaborations and scientific consortia; they publish in English-language scientific journals as active participants in a global scientific endeavour. But some of them also publish in popular science outlets and have things to say about the national character of their countries. Even their purely scientific work often focuses on samples and datasets drawn from their national populations and thus perhaps tacitly but necessarily contains a representation of the nation. And of course their work is often re-worked by science writers in the mainstream media.

In this context, it is relevant that many Latin American countries have, in the last two to three decades, been

undergoing a thorough re-assessment of their national identities, spurred by the so-called ‘multicultural turn’. From about 1990, constitutional and other political and legal reforms have, across the region, given unprecedented recognition to indigenous and Afro-descendant minorities, with measures that include varied forms of land rights, special political representation, ethno-educational initiatives and some kinds of affirmative actions. The question of what the nation is, what its history means and where it is heading has been given a lot of air time.

In this context, what do genetic scientists and genetic data have to say about *mestizo* nations? One early example is the Human Expedition (1988–1993), led by the Institute of Human Genetics of the Pontificia Universidad Javeriana in Bogotá.<sup>2</sup> The research was primarily genetic, medical and also populational, although, in an innovative move, the researchers explored cultural diversity too. Its stated aim was to ‘respond to the needs of the indigenous, black and isolated communities of Colombia’, but it also proposed going ‘on the trail of the hidden America’, understood as the country’s ‘hidden’ black and indigenous communities, located in peripheral and isolated regions.

The HE’s website recounted how ‘the expeditionaries return from their travels with a new vision of the Colombia that is slowly being revealed to us’, a vision that it was hoped would ‘help to construct a future in which we can live together in reasonable harmony’.<sup>3</sup> Like the studies of the 1940s, the HE was partly driven by salvage anthropology, aiming to conserve a biological patrimony that was being ‘diluted amid the progressive *mestizaje* of these cultures’. The nation was represented as a mainly *mestizo* one, with relatively ‘undiluted’ blackness and indigeneity ‘hidden’ in isolated peripheries: the substantial indigenous and majority Afro-Colombian populations living in urban areas were indeed hidden or apparently deemed uninteresting from a genetic and cultural point of view.



1. Admixture mapping is based on the idea that some disorders are more common in some of the world's populations than in others. When the genomes of patients and healthy people are compared, if patients show a high level of, say, European ancestry, at a particular place on the genome, this may indicate the location of a genetic variant underlying the disorder under study. The result narrows down the search for relevant genetic variants among the millions present. In controlling for confounding effects of ancestry, researchers match samples of people with the disorder and control samples in terms of ancestry, which allows them to discriminate between genetic variants that are associated with disease and those that are a product of demographic and evolutionary processes.

2. See Eduardo Restrepo, Ernesto Schwartz-Marín, and Roosbelinda Cárdenas, ‘Nation and difference in the genetic imagination of Colombia’, in *Genomics, Race Mixture and Nation in Latin America*, edited by Peter Wade, Carlos López Beltrán, Eduardo Restrepo and Ricardo Ventura Santos (Durham, NC: Duke University Press, 2014), pp. 55–84. See also Peter Wade, *Degrees of Mixture, Degrees of Freedom: Genomics, multiculturalism, and race in Latin America* (Durham, NC: Duke University Press, 2017).

3. See [www.javeriana.edu.co/ins-genetica/investigacion/expedicion-humana](http://www.javeriana.edu.co/ins-genetica/investigacion/expedicion-humana)

A second more recent example comes from Brazil, where teams of geneticists carried out extensive work measuring degrees of admixture.<sup>4</sup> Some of this work aimed to show that social categories of colour or race which were used to classify individuals in Brazil – such as white, black, and brown – had little correlation with the amount of African genetic ancestry in individuals' genomes. There was also not much correlation to objective measures of skin tone. These data were used to argue that these social categories were useless – even as rough proxies – for medical research and treatment that needed to know about genetic ancestry: the only sensible approach



was to measure the actual genetic ancestry of each individual. But the data were also used in other ways. In a popular science article titled 'Molecular Portrait of Brazil', a group of geneticists speculated that 'if the many white

Brazilians that have Amerindian and African mitochondrial DNA became aware of this, they would better value the exuberant genetic diversity of our population, and, who knows, they might construct a more just and harmonious society in the twenty-first century'. The genetic data, which uncovered facts about the past and present of the Brazilian nation, were used to make optimistic statements about its future. These statements fitted with ideals of the country as a 'racial democracy' that had, in the mid-1900s, been the official face of the country, but had taken a severe beating after about 1970, without disappearing entirely, at least as an aspiration.

In 2007, some of the geneticists in this team were also asked by BBC Brazil to undertake DNA ancestry tests on nine Afro-Brazilian celebrities: the results indicated that some of them had a lot of European ancestry in their profiles. At the time in Brazil, there were heated debates about the pros and cons of race-based affirmative action policies specifying admissions quotas for black people in some public universities. Those in favour of the policies argued that they would help correct past racial injustice; those against said the quotas would simply reinforce racial divisions, arguing that social injustice should be tackled with colour-blind policies. Critics of the scheme used the BBC results and other genetic research showing that black people in Brazil have substantial amounts of European heritage to argue that there is no 'real' black population in Brazil that could be the beneficiary of

race-based affirmative action policies: all Brazilians are mixed, they said. Even a leading geneticist said that policy-makers should pay heed to genetic realities to guide social policy. The courts and the government, however, backed the quotas, saying that genetics was irrelevant: being black is a social fact not a genetic one. The point is that data about degrees of genetic mixture were being deployed to make statements about and evaluations of the nation, its present state and its future direction.

In the 2000s, as in the 1940s, genetics continues to be entangled with the wider social networks in which it sits: the biological facts of *mestizaje* in Latin America have undoubted medical relevance; but they also exercise a magnetic attraction for thinking about the nation. In this sense, the biological facts uncovered by the geneticists are a slim basis onto which much weightier statements are added by geneticists and others about the character of their *mestizo* nations and the indigenous and black people who form part of them – statements that often threaten to overwhelm the biological basis that apparently supports them. In this respect, it is notable that, after three or four decades of multiculturalist political emphasis on black and indigenous minorities, genetic portraits in both scientific journals and mainstream media are resolutely of *mestizo* nations. This restates the familiar image of *mestizaje* that has long been the key representation of these nations. ■

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4. See Michael Kent, Ricardo Ventura Santos, and Peter Wade, 'Negotiating imagined genetic communities: unity and diversity in Brazilian science and society', *American Anthropologist*, 116:4 (2014), 1–13. See also Wade, *Degrees of Mixture, Degrees of Freedom*.