DEGREES OF MIXTURE, DEGREES OF FREEDOM

Genomics, Multiculturalism, and Race in Latin America

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PREFACE

This book emerges from an interdisciplinary and collaborative project called "Race, Genomics and *Mestizaje* [mixture] in Latin America: A Comparative Approach," which ran from 2010 to 2013. The project had two funding phases, each running for eighteen months. The project team consisted of myself, as overall director, and three teams, focusing on Brazil, Colombia, and Mexico, respectively. In each country, there was a senior coinvestigator (COI), who worked with a postdoctoral researcher (employed by Manchester University for the duration of the project) and a locally hired research assistant. The teams were as follows, listed in order as COI, postdoctoral researcher, and research assistant:

BRAZIL · *Ricardo Ventura Santos* (biological anthropologist at Fundacão Oswaldo Cruz, Fiocruz, in Rio de Janeiro); *Michael Kent* (PhD in social anthropology from the University of Manchester, now an independent development consultant based in Bolivia); and *Verlan Valle Gaspar Neto* (during the project he finished his PhD in cultural anthropology at the Universidad Federal Fluminense; he is currently a professor at the Universidad Federal de Alfenas).

COLOMBIA · *Eduardo Restrepo* (social anthropologist at the Pontificia Universidad Javeriana in Bogotá); *María Fernanda Olarte Sierra* (PhD in social sciences from the University of Amsterdam, currently a professor at the Universidad de los Andes, Bogotá) for phase one of the project, followed by *Ernesto Schwartz-Marín* (PhD in genomics in society from the University of Exeter, currently a research fellow at the University of Durham); and *Adriana Díaz del Castillo* (MA in medical anthropology from the University of Amsterdam, now a researcher at the Universidad de los Andes, Bogotá) for phase one, followed by *Roosbelinda Cárdenas* (during the project she finished her PhD in anthropology at the University of California, currently a visiting professor at Hampshire College).

MEXICO · *Carlos López Beltrán* (historian of science at the Universidad Nacional Autónoma de Mexico [UNAM] in Mexico City); *Vivette García Deister* (PhD in philosophical and social studies of science and technology from UNAM, where she is now a professor), replaced during her maternity leave by *Sandra González Santos* (PhD in sociology from the University of Sussex, currently teaching at the Universidad Iberoamericana, the Centro Nacional de las Artes, and UNAM); and *Mariana Rios Sandoval* (MA in medical anthropology from the University of Amsterdam, now a PhD student at the same university).

In each team, the roles of the three members varied in terms of hands-on data collection, but in general the postdoctoral researcher was the main investigator. During phase one of the project, the focus was primarily on a small number of labs and scientists in each country and secondarily on the way genetic information circulated outside the labs; during phase two, the balance was the other way around, including data collection (e.g., through focus groups) on how nonscientists reacted to genetic information.

Although I appear as the sole author of this book, I have depended on the data collected by the other team members and am also indebted to the many discussions we had during the project, at the several project workshops we ran, and during the process of producing a number of collaborative publications, foremost among which are *Mestizo Genomics* (Duke University Press, 2014, coedited by Wade, López Beltrán, Restrepo, and Santos) and a special issue of *Social Studies of Science* (December 2015, coedited by Wade, López Beltrán, and Santos). In this book, I cite these and other publications where relevant. I extend my heartfelt appreciation to all the team members for what was an exhilarating intellectual experience—shared, I believe, by all.

The material in this book draws together the different strands of the project—plus some additional material (e.g., chapter 2)—into a single narrative, while also framing them in a new way, integrating them all into a single and, I hope, innovative argument about the relations and tensions between ideas of purity and mixture, and hierarchy and democracy. My aim has been to produce a deep analysis of the interweaving of ideas about the governance and imagination of cultural diversity/mixture with ideas about biological diversity/mixture. I use the concepts of assemblage and topography as conceptual tools in an analytical integration that seeks to avoid science–society dualisms, including the remnants of this opposition detectable in "coproduction" approaches. The main focus of *Mestizo Genomics*—which can be boiled down

to the question of how much the practice of genomic science reproduces familiar race-like concepts—has been submerged in the broader question of how genetic science has been and is connected to nodes in an assemblage that encompasses ideas and practices around the governance and imagination of human diversity. In the process, the comparative view inherent in the project—across Brazil, Mexico, and Colombia, but also of Latin America in a global context—is sharpened, and the analysis is more sustained in an effort to grapple with both the insights afforded by comparison and the pitfalls it presents in terms of bringing some things into focus while moving others into the background.

ACKNOWLEDGMENTS

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Mixture as a Biopolitical Process

This book is about mixture as a biopolitical process and how it has figured in science and society in Latin America—specifically, Brazil, Colombia, and Mexico. The immediate referent is "race mixture" or, in biological science, "genetic admixture," and the key location is Latin America. In this region, *mestizaje* (Spanish) or *mestiçagem* (Portuguese)—roughly translatable as mixture—is an important concept for thinking about history, politics, nation, identity, and human biology.[1] From colonial times onward, societies there have been conceived as formed from the biological and cultural mixture of Africans, Europeans, and native Americans. Especially after independence in the first half of the nineteenth century, mixture has been seen in most of the region as constituting the essence of the nation.

Taking race mixture or mestizaje to be a biocultural process means that, despite its focus on life sciences, and specifically genetics, this book is not just about biology and genetics, but rather about a complex assemblage of ideas and practices enacting mixture (and its relational counterpart, purity) in interconnected domains of social action, such as politics, genetics, and the constitution of identity. Although the focus is Latin America, by looking at mixture and purity, the book embraces broader themes of equality and hierarchy in liberal political orders, exploring how ideas about genetic mixture get drawn into the frictional tension between democracy and inequality, and what Latin America and its "admixed" populations mean for genomic science in general.

Mixture is attracting attention both as a set of sociocultural processes (whether phrased in terms of "interracial" or "interethnic" unions, or generally in terms of cosmopolitanism and the increased movement and exchange of people, ideas, and things) and as a genetic process (in terms of scientific interest in mestizo populations). I explore how genetic understandings of

mixture, as the biological process of formation of national Latin American mestizo populations, operate in the larger biopolitical assemblage of mixture, becoming entangled with ideas about difference and sameness, hierarchy and democracy, and equality and inequality. Mixture in genetics insistently reiterates origins and (relative) purities, as well as reiterating the gendered, sexualized mixture that brings these purities together, and this insistence exists in variable relation with the tensions between hierarchy and democracy that pervade liberal democracies.

In this introduction, I first examine some key features of mestizaje and ideas about mixture and purity generally, before exploring their linkages to ideas about equality and hierarchy and describing how Latin American mestizaje has often been associated with democracy and equality, an association continuing through a recent turn to multiculturalism that appears to break with images of homogeneous mestizo nations. In chapter 1, I argue that population genetics has also been characterized by a tension between purity and mixture, which has run through its attempts to understand human diversity; in the genetic study of Latin American populations, that tension is especially evident. I go on to explore how these scientific and political practices and ideas are elements in a complex assemblage, rather than being two domains of "science" and "politics" that interact; I use the concept of topology to draw out the character of the relations involved in the assemblage.

Mestizaje, Mixture, and Purity

Mestizaje has deep roots in ideas of sexual reproduction between people of different "races," but it implies more than biological mixture. True to the biocultural character of race—which has always entangled nature and culture, and bodies and behavior, blurring the simple oppositions suggested by these binaries (Hartigan 2013d; Wade 2002b)—mestizaje is a biocultural concept that assembles many different meanings and elements, providing affordances for multiple practices in diverse clusters of thought and action. It is a concept, or rather an assemblage, that can organize practice in realms of politics and governance, demography, literary and artistic production, life sciences, identity politics, and kinship and family. The idea of Latin American nations and their peoples as mixed—as mestizos—runs deep and wide. Genetic scientists in Latin America today eschew explicit use of the concept of race, but they are certainly interested in mixture and its "original" ingredients, and the genetic data they produce about mestizos and their ancestral parents (indigenous,

European, and African populations) become part of the biocultural assemblage of mestizaje.

This book is about Latin America, but the idea of mixture has wider biopolitical connotations. It is fundamental to the notion of race: "bastard and mixed-blood are the true names of race" (Deleuze and Guattari, cited in Young 1995, 180). The tensions between ideas of purity and ideas of mixture have been recurrent in racial thinking in its varied forms (Monahan 2011). While in Latin America after the mid-nineteenth century, the idea of mixture was often embraced as a positive value—more ardently in some countries than in others, and always ambivalently—mixture has been a matter of concern in other regions. Within the theme of "purity and danger" and fears about contamination and classificatory conundrums produced when things are not in their "proper" place (Bowker and Star 1999; Douglas 1966), I focus on these matters as they pertain to societies characterized by what Foucault (1998) called the "symbolics of blood" and the "analytics of sexuality"—roughly speaking, "the West." Foucault traced major historical shifts from the symbolics of blood—in which a sovereign monarch ruled society and exercised direct control over people's bodies, having the power through law to decree life or death—to an analytics of sexuality, in which the aim of governance was to administer and invigorate the life force of the populace, through proper management of their bodies and behavior, especially in relation to sex.

In both regimes, purity and mixture were important for political order and governance. For royalty and nobles, the purity of bloodlines mattered greatly and had to be managed not through the avoidance of mixture—procreation requires mixture—but through the choice of appropriate mixtures: good marital alliances that would protect purity and property. For leaders and experts concerned with the biopolitical management of the life force of the nation's population, mixture was a process that should be channeled advantageously toward (relative) purity. In nineteenth-century thinking, mixture between "proximate" races could be acceptable, even beneficial; mixture with "distant" races produced degeneration for the "superior" race (Young 1995: 17). Animal breeders at the time saw carefully controlled mixture as potentially invigorating for purebred pedigrees (Ritvo 1997). As Foucault put it, ideas about regulating and optimizing the life force of populations and bodies "received their color and their justification from the mythical concern with protecting the purity of the blood and ensuring the triumph of the race," thus indicating that "the preoccupation with blood and the law has for nearly two centuries haunted the administration of sexuality" (1998: 149). Race and sex were integrally related:

sex was the means by which the biological and cultural purity of lineages, classes, races, and nations could be protected or threatened (Nagel 2003; Wade 2009).

Mixture/Purity, Democracy/Hierarchy, and Liberalism

Beyond a concern with race, it is clear that power, privilege, and hierarchy are fundamental to this tension between purity and mixture. Mixture does not *need* purity in the ingredients that make up the mix; it just needs difference, which allows the production of more difference in an endless proliferation. But, in the pursuit and maintenance of hierarchies of value and power, relative purities are carved out of the sea of mixtures, by dint of selective genealogical tracings of particular connections, the enforcement of categorical distinctions, and exclusive practices.

Mixture and purity are *relational* concepts, which mutually define each other: what is seen as pure for some purposes can be understood as mixed for others; behind every purity, a mixture can be revealed with sufficient digging; it is possible, with effort, to construct purity out of mixtures, even if "absolute" purity remains an asymptotic ideal. While in an abstract sense mixture might not need purity, in contexts of hierarchy, mixture is made meaningful only in relation to relative purities.

Maintaining purity is a matter of marking boundaries of inclusion and exclusion, which, when allied with the use of power, can easily be deployed to protect privilege and status and defend hierarchical orders. Mixture, when controlled by those defending such boundaries and purifications, can reinforce the hierarchy, but if it is not controlled, it can unsettle boundaries and hierarchies. Thus, marriage across class boundaries can reinforce the class hierarchy when it is restricted, is made conditional on assimilation, and is structured by ideas about "marrying up" that are gendered in ways that underline hierarchy (such that lower-class men who get rich can "marry up," but lower-class women might marry up because of good looks rather than wealth). But widespread marriage across class boundaries, in which every "up" might also be seen as a "down," might weaken those boundaries in the long term. In that sense, mixture can be *claimed* to possess a democratic dynamic, while purity is allied to hierarchy. Mixture has a dual aspect (Wade 2005a; Young 1995): when it exists in the context of hierarchy and purifications, it can reproduce these structures; when powered by difference as an endless proliferation, it can undermine them. The potential for mixture to enhance democracy has been made much of

in recent social theory (see below): however, this potential is always truncated by the opposite tendency of mixture to reproduce hierarchy (Wade 2004, 2005a).

In liberal political orders, the tension between hierarchy and democracy is strong. The ideals of liberalism are fundamentally democratic, based on notions of equality and liberty and enshrined in such founding documents as the U.S. Declaration of Independence (1776), the French Revolution's Declaration of the Rights of Man (1793), and the Spanish Constitution of 1812, a model for independent nations in Latin America, such as the 1826 Bolivian Constitution, drafted by Simón Bolívar. Such ideals have always coexisted with hierarchies of one form or another, often involving dramatic inequalities. Women were deprived of the vote for centuries after the French Revolution's Declaration of the Rights of Man—until 1945 in France itself. Sexist beliefs deemed women to be unsuited to participate directly in politics. Liberal political orders also disenfranchised illiterates and non–property owners, measures that acted disproportionately to keep nonwhites out of the political system, as well as poor people (Engerman and Sokoloff 2005). Liberal ideals and political systems have coexisted easily with colonialism, slavery, and stark racial segregation. Many liberal nations practiced immigration policies that were racially discriminatory, either by intent or in effect, well into the twentieth century and, arguably, still today (FitzGerald and Cook-Martín 2014; Wade 2015: 113–16). Major theorists of liberalism, from the seventeenth to the nineteenth centuries, such as John Locke and John Stuart Mill, adhered to a theoretical ideal of the innate equality of all people, but also held that a proper education—not equally available to all—was necessary to cultivate the reason needed to rule (Mehta 1997). Whole categories of people—for Mill, the Indians or the Chinese, who had become "stationary"—needed the rule of people, such as Europeans, who were an "improving portion of mankind" (1859: 135). Recently, liberalism has eschewed such explicit language of hierarchical difference, but hierarchy itself remains, justified by criteria deemed to constitute good citizenship in a neoliberal world, such as personal or community responsibility, respect for "security," ethical and moral probity, accountability, enterprising self-improvement and organization, cultural tolerance, and maintaining a clean distinction between "public" and "private" spheres (Brandtstädter, Wade, and Woodward 2011; Rose and Miller 2008). In practice, hierarchy often retains strongly racialized dimensions, even if an explicit language of race is avoided (Goldberg 2008).

The inherent drive of liberalism toward sameness—all citizens are equal before the law and the state—is in friction with the inherent drive of the political economy, especially under capitalism, to generate hierarchical differences,

typically those of race, class, and gender. This friction resonates with ideas about purity and mixture. The right to govern should be exercised by people selected for the job according to certain criteria. In theory, these criteria are determined by a bureaucratic rationality, which selects the best person for the job and allows a mixture of people. In practice, purifications take place that—directly, but mostly indirectly—select governors by race, class, and gender. The idea of mixture holds out the promise of crossing boundaries, of the rubbing of shoulders between different kinds and classes of people, and of the sharing of spaces, social milieux, and resources, as well as sexual intimacies, bodily substances, and lineage. The idea of purity betokens defensiveness, exclusiveness, fear of contamination and insecurity, the building of boundaries and maintenance of separation, and the channeling of bodily substances, such as "blood," into regulated lineages, races, and classes, a process that requires control of gender difference. Equality and hierarchy, and mixture and purity, exist in tension. Liberal political orders are characterized by processes that enhance equality of opportunity and mixing across social boundaries: access to education is widened and equality of opportunity is increased; discrimination is outlawed, "diversity" is recognized, and tolerance is valued. Simultaneously, other processes increase hierarchy and purifications, nationally and globally: immigration is controlled, "security" requires tighter regulation of movements of people, unwelcome aspects of "diversity" are proscribed, neoliberal economic measures increase poverty, and disparities of class and race persist and even grow, resulting in continued segregations.

The tension between democracy and hierarchy in liberalism is heightened by the fact that hierarchical processes of purification generate categories of excluded people who then use the categories on which their exclusion is based to self-identify, mobilize, and claim democratic rights. Purifications are bent to the service of democracy. This strategy of the oppressed is necessarily double-edged: political mobilizations based on categories of exclusion have historically made great gains (e.g., women's suffrage; the dismantling of Jim Crow segregation and apartheid); but they do so at the risk of reinforcing precisely the categories that were the bases of exclusion. A recurrent question for excluded people who mobilize politically is: What are we aiming for in the long term? Do we want a society in which categorical exclusions no longer exist (i.e., a society in which our political movement no longer serves a purpose)? Or do we want a society in which our difference continues to be recognized and perhaps given institutional space, but in a nonhierarchical and democratic way? This dilemma is part of the tensions inherent in liberalism.

Hierarchy always tends to utilize difference in the service of purification and more hierarchy, whether the difference comes from above or below. A truly democratic society, in which difference is only a process of endless proliferation, can only be achieved when hierarchy itself is banished.

Mixture and Democracy in Latin America

Latin American countries dramatize clearly the way mixture has been claimed to have a strong affinity with democracy, usually in terms of the potential of mestizaje to undermine racial hierarchy, often connected to the fact that mestizaje implies intimate relations and produces kinship. Latin American countries also dramatize the ambivalent meanings attached to mixture, which can simultaneously reenact hierarchy, even between sexual partners and within the family. As we will see, claims made about mestizaje and democracy do not always confine themselves to ideas about *racial* democracy, but refer to "social democracy" or simply "democracy." It may be that the commentators involved prefer to avoid the word *race*, but as they frequently use racialized terminology, it is likely that, for them, "democracy" and "racial democracy" are closely allied concepts. The broader purchase of the claims is worth noting: mestizaje is seen as a solvent for hierarchy in general.

The link between mixture and democracy was often forged in the middle to late nineteenth and early twentieth centuries, when Latin American elites bent on nation-building had to contend, on the one hand, with their majority black, indigenous, and mixed populations, and, on the other, with Euro-American theories, which argued that these populations were biologically as well as culturally inferior and that mixture was often a degenerative process. Latin American elites reacted in varying ways (Appelbaum, Macpherson, and Rosemblatt 2003; Stepan 1991; Wade 2010). One was to attempt the racial whitening of the population through immigration, allied with the belief that "superior white blood" would improve the mix, rather than itself suffer degeneration. Another was to declare that the new Latin American nations had embraced modern republican racial fraternity—much more so than the supposed beacons of democracy in North America and Europe, at least in the mid-nineteenth century (Lasso 2007; Sanders 2014). A related idea was to valorize mixture itself as a positive process, with the potential to generate physical vigor, cultural richness, and social democracy—albeit with a helping hand from projects of social hygiene and education. The last position gained ground in some countries in the early to mid-twentieth century, as

the figure of the mestizo was resignified from being the illegitimate plebeian, or perhaps upstart, of colonial times, to embodying the dreams of national honor, of development and progress, of continental solidarity, and of modern democracy—contra the exclusivist purities of the global North. However, this glorification of the mestizo rarely divested itself completely of the superior value attached to whiteness; this meant that the possibility of linking mixture to democracy was always in tension with racial hierarchy.

In Colombia, as early as 1861, the writer and politician José María Samper optimistically wrote that "this marvelous work of the mixture of races . . . should produce a wholly democratic society, a race of republicans, representatives simultaneously of Europe, Africa and Colombia, and which gives the New World its particular character" (Samper 1861: 299). This did not stop him from characterizing indigenous people as "semi-savage," "of primitive race," and "patient but stupid" (1861: 88), nor from demeaning in racist terms the black boatmen (*bogas*) of the Magdalena River whom he encountered on his travels, whose "savage features, fruit of the crossing of two or three different races" betrayed minds for which "the law [is] an incomprehensible confusion, civilization a thick fog and the future, like the past and the present are confounded in the same situation of torpor, indolence and brutality"; these people "had of humanity almost only the external form and the primitive needs and forces." Typically of a liberal mind, Samper did not despair entirely of the black people he met, some of whom seemed to him "to form an energetic race, of excellent instincts and capable of becoming an estimable and progressive people with the stimulus of education, industry and good institutions," but the black boatmen he met earned his particular disapproval, and he thought they would "only be able to regenerate themselves after many years of civilizing work, fruit of the invasion of these jungles by agriculture and commerce" (Samper 1980: 88–94). In abstract terms, mixture should produce democracy; in practice, it could produce a barely human type, like the boatmen, product of the mixture of "races debased by tyranny," with little or no European input.

Later, another Colombian politician and writer, López de Mesa, took a similarly ambivalent stance on mestizaje. In one 1927 essay written for church and government officials, he said "the mixture of impoverished bloods and inferior cultures [by which he meant African and indigenous people] brings about unadaptable products" (cited by Restrepo 1988: 380). In another essay, written for general consumption, he said optimistically that Colombians were "Africa, America, Asia and Europe all at once, without grave spiritual perturbation," and that the country was no longer "the old democracy of equal citizenship

only for a conquistador minority, but a complete one, without distinctions of class or lineage" (López de Mesa 1970 [1934]: 14, 7). Like Samper, López de Mesa thought indigenous and black people occupied lower rungs on the racial ladder, so that mixture with them was deleterious, yet he still thought mixture in general held democratic potential.

López de Mesa contributed a speech to a 1920 conference organized by a student association in Bogotá to debate the question of race in Colombia, the proceedings of which were published under the title *Los problemas de la raza en Colombia* (The problems of [the] race in Colombia) (Jiménez López et al. 1920).[2] In his text, López de Mesa makes repeated reference to "our love for democracy" and the "incessant desire" of "*la raza [colombiana]*" for "culture, liberty and democracy." Although he does not make an explicit causal link between mixture and democracy, it is understood that la raza is a mixed one—this is precisely the "problem" under debate. And the two concepts are often juxtaposed. Thus the "rapid mestizoization" of the people of the Antioquia region of northwestern Colombia is immediately followed by the claim that they have "the most democratic government in the world" (Muñoz Rojas 2011: 160–61, 181, 201). Another contributor, Jorge Bejarano, was more explicit: "What is the result of this variety of races? Politically [it is] advent of a democracy, because it is proven that the promiscuity of races, in which the element socially considered inferior predominates, results in the reign of democracies" (Muñoz Rojas 2011: 245). Here, democracy results from a process of mixture powered from below and not controlled by the elite.

In Mexico, especially after the Revolution (1910–20), mestizaje was promoted as a means to national unity and a way—always double-edged, however—to erase old hierarchies of race (Moreno Figueroa and Saldívar 2015). The intellectual and author Andrés Molina Enríquez (1868–1940) placed his faith in the "mestizo liberals" as the ones who could modernize and indeed create the nation, a task the indigenous peoples and the *criollos* (Mexican-born descendants of the Spanish conquistadors) were not suited to, but which the mestizos, with their "egalitarian" tendencies, could achieve (Molina Enríquez 2004 [1909]: 42). Such a view by no means dispensed with racial hierarchy in the sense that Molina Enríquez saw mestizos as a "race," which was "inferior" in its inception, even if superior to the criollos and the *indígenas* (indigenous people) in its long-term capacity to forge the nation. But mixture was clearly linked to progress, equality, and modernity.

A similar view of mestizaje as holding the potential to dissolve racial hierarchy was held by the politician and intellectual José Vasconcelos (1882–1959),

who, like Molina Enríquez, was nevertheless guided by the racial hierarchies and eugenic theories of his day. He foresaw the global dominance of a fifth "cosmic race," a mestizo race, additional to the existing four races, which would disappear, having had their day. The cosmic race was the "mission of the Ibero-American race": because of its history, Latin America was the crucible for racial democracy. The heroes of Latin American independence had declared "the equality of all men by natural right [and] the social and civic equality of whites, blacks and *indios*"; in this, they formulated the "transcendental mission assigned to that region of the globe: the mission of uniting [all] people ethnically and spiritually." Vasconcelos stated that global history was divided into three stages—material/warlike, intellectual/political, and spiritual/aesthetic. Together, this made "five races and three stages, that is, the number eight, which in Pythagorean Gnosticism represents the ideal of the equality of all men." This future of racial mixture and equality did not prevent Vasconcelos from seeing black people as a "lower type" of the species who would be gradually absorbed by a "superior type": blacks would be able to "redeem themselves . . . through voluntary extinction, [as] the uglier breeds will gradually give way to the more beautiful" (Vasconcelos 1997 [1925]: 59, 72, 79). Alongside this expression of racial hierarchy, the overall link between mixture and democracy was central to his approach. In the prologue to the 1948 edition of his book, Vasconcelos noted that UNESCO had recently "proclaimed the necessity of abolishing all racial discrimination and educating all men in [conditions of] equality," and he saw this as a return by dominant powers to "the recognition of the legitimacy of mixture and interracial fusion," which Vasconcelos had lobbied for twenty years earlier, with Latin America in mind as an exemplar (1997 [1925]: 43).

In the first half of the twentieth century, the Mexican government used claims that the country was a racial democracy as a way of taking the moral high ground in relation to the United States and its racially segregated society. An 1890 proposal for a new immigration law declared that Mexico was based on "the dogma of universal fraternity; believing that racial differences in the human family do not establish inequality before the law, all races . . . have the doors of the country open to them." The immigration law passed in 1909 restated this principle of "the most complete equality of all countries and races," noting that, although the law followed the U.S. example in some respects, the United States was "famously different" from Mexico, which was more racially tolerant. In practice, there was pressure from various sectors in Mexico to restrict Chinese immigration; anti-Asian racism was common (as was anti-Semitism). By 1927, a presidential decree banned the labor immigra-

tion of Middle Easterners. The rationale for these discriminations was partly economic, but also partly eugenic: Chinese and Arabs were seen as inferior additions to the Mexican mix, likely to provoke degeneration. Despite this, the Mexican government insisted that, because Mexico was based on mixture, it could not be racist: in 1933 the Foreign Ministry denied that the government had "any racial or class prejudice, all the more because the great Mexican family comes from the crossing of distinct races." Not mixing was deemed in itself evidence of racism: Mennonites and Jews were seen as minorities who refused to mix, believing themselves superior; their immigration was considered problematic and subjected to restriction, often through confidential directives to consulates that also restricted Asians, Arabs, and blacks, among others. During World War II, Mexican government protestations of antiracism gained force, attacking Nazism but also U.S. racial segregation. By criticizing U.S. racism against Mexican immigrants, the government effectively opposed an image of Mexican mestizo racial democracy to one of racial hierarchy. World War II and its aftermath were a time of global antiracist pronouncements (see chapter 2), and Mexico helped shape the discourse by emphasizing the role of mixture in fomenting democracy (FitzGerald and Cook-Martín 2014: 225–26, 227, 236, 251).

Brazil is probably the country best known for acting as a counterpoint to racism, especially of the U.S. variety. Brazilians and North Americans alike counterposed the idea of a Brazilian racial fraternity to the racial segregation of the U.S. South (Seigel 2009). In the 1920s, there was a public debate about proposals to create a statue in Rio de Janeiro commemorating the Mãe Preta (black mother) of slave times. Diverse opinions were expressed—for some the mother figure represented black resistance, for others the authority of the white-led patriarchal family—but the idea of racial fraternity was common ground. Washington Luis, elected president in 1926, wrote: "Fraternity, the sentiment that unites all men as brothers, with no distinctions whatsoever, will be the work of the South American peoples . . . [and] in South America, Brazil is the country foreordained to make this fraternity real" (cited by Seigel 2009: 217). Like Vasconcelos, Luis saw Latin America as destined to usher in racial democracy to the rest of the world. The statue was "conceived as a performance on a global stage to demonstrate Brazil's racial harmony and spiritual superiority." Its supporters all "rejected the notion that racial mixture in Brazil had weakened the nation . . . [and] championed this history as the nucleus of Brazilian moral superiority" (Seigel 2009: 207, 208). It is notable that the idea of racial *fraternity* depended on the image of a black *woman*. This encapsulates the way racial hierarchy articulates with sexism in Latin American: the existence of racial

hierarchy is sublimated by the oppression of women, which involves dynamics of intimacy and love, as well as control and exploitation (see chapter 8).

In the 1930s, these ideas were developed influentially by Gilberto Freyre in his writing on Brazilian history and the formation of the nation. In his classic work, *Casa-grande e senzala*, first published in 1933 and translated into English in 1946 as *The Masters and the Slaves*, he wrote,

> The fact of the matter is that miscegenation and the interpenetration of cultures—chiefly European, Amerindian and African culture—together with the possibilities and opportunities for rising in the social scale that in the past have been open to slaves, individuals of the colored races and even heretics: the possibility and the opportunity of becoming free men and, in the official sense, whites and Christians . . . the fact is that that all these things have tended to mollify the interclass and interracial antagonisms developed under an aristocratic economy. (Freyre 1986: xiv)

In his view, the "social effects of miscegenation," the contributors to it, and its *mestiço* products all "exerted a powerful influence for social democracy in Brazil," with the result that "perhaps nowhere is the meeting, intercommunication, and harmonious fusion of diverse or, even, antagonistic cultural traditions occurring in so liberal a way as it is in Brazil" (1986: xxx, 78). Although Freyre did not use the term *racial democracy* at this time, others concerned with race in Brazil began to use it by the 1940s: the image of Brazil as racial fraternity had become official and was actively promoted as part of the nationalist policies of the Getúlio Vargas administration (1930–45) and during the military dictatorship (1964–85). The term *racial democracy* was also given currency in publications arising out of the large-scale research project on Brazilian race relations sponsored by UNESCO in the 1950s (Guimarães 2007). This was undertaken in the antiracist climate of the post–World War II Western world, symbolized by the UNESCO declarations on race, which attacked any scientific basis for racism (see chapter 1). As in the past, Brazil appeared here as a counterpoint to the United States, and as an example of a place where the problems of racism were relatively minor—an image not fully endorsed by the results of the UNESCO studies (Fontaine 1985; Maio 2001; Wade 2010: 52–59). Freyre himself continued to espouse ideas linking mixture to racial democracy. In the 1970s, he developed the concept of a *moreno* (brown) "meta-race": "The concept of meta-race [is] linked to that of brownness, as a Brazilian response—beyond sectarian or archaic racist ideologisms—to whitenesses, blacknesses and yellownesses" (cited by Hofbauer 2006: 252).

Mixture, Multiculturalism, and Democracy

The idea of a Latin American racial democracy has been severely dented by studies documenting the realities of racial inequality and racism, first in Brazil from the 1970s and subsequently in other countries, including Colombia and more incipiently Mexico.[3] Studies have also highlighted the powerful elements of hierarchy that pervade ideas about mestizaje and that denigrate blackness and indigeneity (De la Cadena 2000; Hale 1996; Wade 2005b). Latin America dramatized for the world the fact that racism can coexist with intimacy across race lines—which in the long term became blurred by those intimacies—and can exist within the families that those intimacies establish (Hordge-Freeman 2015; Moreno Figueroa 2008).

Partly in reaction to these studies, a wave of multiculturalist reform has swept Latin America since about 1990, recognizing indigenous and, to a lesser extent, Afro-descendant identities and rights, although not always explicitly recognizing the existence of racism as an issue (Hooker 2009; Sieder 2002b; Wade 2010: ch. 6). I explore this in more detail for Brazil, Colombia, and Mexico in chapter 4, and we will see there and in later chapters that multiculturalist reform does not necessarily dispense with mestizaje as a set of ideas and practices that enact the mestizo nation and the mestizo individual. Ideas about mestizaje, rather than simply holding up the image of a homogeneous nation, have always had room for commentary on black and indigenous people (in the past usually seen as inferior inputs to the mix) and on white people (usually seen as a redemptive force): venerating the mestizo did not exclude denigrating blackness and indigeneity, nor valorizing whiteness; in fact, it depended on these opposing valuations. In the twentieth century in some countries, ideologies of *indigenismo* and, incipiently, *negrismo* created conditional spaces for indigenous and black peoples; the ideologies cast them (or idealized versions of them), in primitivist mode, as embodying admirable values.

More significant in creating a space for indigeneity and blackness, and in the turn to multiculturalism, was the role of black and indigenous social movements in struggling for recognition and rights. Although such movements came into their own from the 1960s on, they built on long histories of resistance and struggle by black and indigenous people, often mobilizing around the identities that formed the basis of their exclusion from equality. As with such mobilizations from below, during the nineteenth century the question emerged of the long-term objective—integration into a liberal mixed society versus continuing separateness but on equal terms—and was answered in varied

ways (e.g., Helg 1995; Sanders 2004). The question itself was a product of the dilemmas of liberalism, which put equality, democracy, and inclusive mixture in tension with hierarchy, inequality, and exclusive purification.

Multiculturalism, as an approach in liberal democracies, is one way to address these dilemmas (Barry 2000; Lentin 2004; Lentin and Titley 2011; Modood 2007; Modood and Werbner 1997). Whether official state policy or community-based endeavor, multiculturalism is based on the concept of separate, bounded "cultures"—notionally "pure," although this language is rarely used—each existing as a constituent element of the wider society, each having equal rights to respect and recognition. It holds out the promise that these notionally separate cultures can interact and mix on equal and inclusive terms, thus increasing democracy and perhaps resulting in an endless and nonhierarchical proliferation of hybrids. However, multiculturalism stands accused of merely masking inequality by pretending different cultures are of equal standing, rather than acknowledging the hierarchies of race and class that attach to cultural difference. The idea of the equal interaction among different cultures is undermined by the hierarchical ordering of difference. In addition, multiculturalism entrenches these hierarchies with its objectification of cultural difference and the encouragement of exclusive behavior in the policing of cultural boundaries, whether from inside or outside. This has opened multiculturalism to cutting critiques about essentialism, reification, divisiveness, and exclusive purifications. Multiculturalism's defenders argue that it can highlight inequality by pointing to its structural dimensions and colonial roots, explicitly recognizing racism and providing the basis for reparative justice. They say the recognition of difference does not necessarily lead to exclusive behavior. They maintain that multiculturalism can also create space for minorities to defend themselves and publicize their disadvantaged position; minorities can take the categorical distinctions used to discriminate against them and retread them for purposes of political solidarity and mobilization.

In Latin America, multiculturalism in theory neutralizes or even reverses existing valuations—black and indigenous groups are at least equal in value to mestizo and white (and may even be considered superior in some respects). But the debates about how multiculturalism works in practice show it cannot escape the frictive tension between democracy/mixture and hierarchy/purity that affects liberal political orders. Like mestizaje, multiculturalism is a variation played on the theme of sameness and difference, and it does not evade the play of power that always operates between these two (Hale 2002; Speed 2005).

Alongside these changes toward multiculturalism, Latin American mestizaje continues to be seen in some circles as an antidote to racism and racial divisions (see Hooker 2014; Jiménez Román 2007; Wade 2004). Indeed, mixture may be cast as a way to contest what some people see as the counterproductive essentialist and absolutist identities encouraged by multiculturalism. For example, the historian Gary Nash uncovers the "hidden history" of mixture in the United States, which existed despite its mestizo products being subsumed into the strict categories of U.S. racial segregation: a possible "mixed-race American [i.e., U.S.] republic" was blocked by "prejudice and violence"—which implies the frankly incredible corollary that mixed-race republics south of the border somehow managed to escape racial prejudice and violence. Far from being a solution to racialized hierarchy, multiculturalism simply fuels the "interethnic and interracial tensions that give more powerful groups opportunities to manipulate these divisions." "Racial absolutism [is] the enemy of mestizaje," and "racial blending is undermining the master idea that race is an irreducible marker among diverse peoples" (Nash 1995: 960, 961). In his view, "only through hybridity—not only in physical race crossing but in our minds as a shared pride in and identity with hybridity—can our nation break the 'stranglehold that racialist hermeneutics has over cultural identity'" (1995: 962, citing Klor de Alva).

In Mexico, novelist Carlos Fuentes, in his book El *espejo enterrado*, also gives a version of this argument, highlighting the supposed exceptionalism of Latin America: "Is there anyone better prepared than us, the Spaniards, the Hispanic Americans, and the Hispanics in the United States, to deal with this central theme of encounter with the other in the conditions of modernity of the coming century? We are indigenous people, blacks, Europeans, but above all, mestizos. . . . That is to say: Spain and the New World are centers where multiple cultures meet, centers of incorporation and not exclusion" (Fuentes 1992: 379).

The Chicana poet, scholar, and activist Gloria Anzaldúa is well known for her portrayal of the "new *mestiza*" as a figure who inhabits the ambiguous border zone between the United States and Mexico, and between racial binaries; the mestiza's liminality and mixedness has the potential to unsettle boundaries and hierarchies (Anzaldúa 1987). Within the United States, many commentators have observed that the simple black–white binary that has dominated racial classifications—although other categories such as Native American and Asian have historically been vital as well—is being increasingly complicated by the growing presence of Latinos and Asians. This has

led to a process of "browning" that may, according to some, be bringing the United States into a convergence with Brazil, as the latter also changes toward a clearer political division between black and white (Bonilla-Silva 2004; Daniel 2006; Skidmore 1993). Browning—the product and, more importantly, the acknowledgment of mixture—can also represent a kind of liberation: according to the writer Richard Rodriguez, recognizing the brownness of the United States is a belated "last discovery": brown is the "complete freedom of substance and narration," and it "marks a reunion of peoples, an end to ancient wanderings . . . [which will] create children of a beauty, perhaps a harmony, previously unknown" (Rodriguez 2002: xi, xiii). This reference to the aesthetic appeal of brownness is strongly reminiscent of Vasconcelos.

Beyond regional notions of mestizaje, the idea of mixture or *hybridity*—a term usually used to connote cultural processes, but which inevitably retains its biological origins—has been often considered in the social sciences and humanities as a force undermining hierarchies and promoting cosmopolitan tolerance and democracy (Kapchan and Strong 1999; Wade 2005a; Young 1995). This is evident in the work of Caribbean commentators such as Edouard Glissant on *créolité*, a process of mixture that involves "a non-hierarchical principle of unity [and] a relation of equality" (Murdoch 2013: 875; see also Tate and Law 2015: 53–60). The work of Stuart Hall, Homi Bhabha, and Gayatri Spivak has been interpreted as suggesting that "at the broadest level of conceptual debate there seems to be a consensus over the utility of hybridity as antidote to essentialist subjectivity," and thus as a challenge to hierarchies that depend on such essentialisms (Papastergiadis 1997: 273). For Gilroy, identities that have formed through diasporic processes of movement and exchange are "creolized, syncretized, hybridized and chronically impure cultural forms" (Gilroy 2004: 129), and, as such, they pose a challenge to what he calls the "camp thinking" that separates people into rigid groups and categories, often based on race or ethnicity. Gilroy's project is to encourage "a larger set of loyalties: to humanity and to the idea of a world stripped of racial hierarchy," and to act in solidarity with a "new planetary network in pursuit of a more thoroughgoing democracy than was offered earlier in color-coded forms" (2004: xii–xiii). All these people remark on the dual aspect of mixture, which means that it can work in conservative mode to reinforce hierarchy and notions of purity, or it can operate in a more radical, rhizomic mode to undermine boundaries and hierarchy, increasing democracy. But they choose to highlight its disruptive potential.

Critiques of these optimistic visions of mixture and hybridity look at this duality in a different way. Hybridity and mixture may have destabilizing and

unsettling—democratizing—potential. But this potential is insistently hampered by the other side of the coin of mixture and hybridity: in contexts of hierarchy, they also inevitably entrain concepts of purity and wholeness, as the notional bounded antecedents that give rise to the mixture that crosses the boundaries that would not otherwise exist. The imaginary of mixture persistently invokes a founding notion of relative purity, or of original ingredients. Against this, rhizomic models of hybridity emphasize that any mixture can be understood as a mixture of anterior mixtures. This is the logic of the cognatic kinship that acts as a (usually unspoken) model for these theorizations of hybridity: parents, each of whom is a mixture of their own parents, give rise to a child who is also a mixture. There is an endless proliferation of difference: children are similar to their parents, but also always different (Strathern 1992: 14). But therein lies the duality: mixture is meaningless, because all mixtures are generated from mixtures, so there is no origin and there is only the proliferation of difference; and mixture is meaningful, because the concept depends on the combination of identifiable wholes or origins (Kapchan and Strong 1999; Wade 2005a; Young 1995: 25–26).

This duality has long been evident to theorists acquainted with Latin America, who are aware of the potential of ideologies of mestizaje as both liberatory and yet host to virulent racism. Mestizaje simultaneously undoes purities, yet recreates them; it unsettles racial hierarchies, but reproduces them; it foments democracy, and still depends on inequalities. The possibility of marrying across racial boundaries and creating racial diversity within a single family blurs stark racial hierarchy by articulating it with sexual relations, which means people of the oppressed category living with and loving people of the oppressor category, a practice that also tends to blur the racialized dimensions of both those categories. But this possibility provides an arena in which to reenact boundaries and differences within the marriage and the family. The idea of a common mestizo identity for the nation creates a ground for racial democracy, but simultaneously provides a space within which blackness, indigeneity, and whiteness are hierarchically valued. Part of that valuation includes relegating black and indigenous peoples, at least in their "purer" forms, to the peripheries of the nation and associating them with the past, outside of modernity and development (Hordge-Freeman 2015; Moreno Figueroa 2010, 2012; Radcliffe 1990; Stutzman 1981; Wade 2009: 158–59). In fact, an important part of the way the tensions between equality and hierarchy are mediated in ideas and practices of mestizaje is by defining relatively pure nodes of indigeneity and blackness and locating them in the past; this temporal othering allows

racial hierarchy to coexist with the democracy of mestizo modernity. In sum, then, seeing Latin American–style mixture as a model for facilitating racial democracy is a deeply problematic position, as it only focuses on one dimension of the inherent duality of mestizaje and of mixture more generally (Seigel 2009; Tate and Law 2015: 145; Wade 2004).

Structure of the Book

In chapter 1, I argue that, like liberalism and mestizaje, human population genetics has been characterized by a tension between purity and mixture, which has run through its attempts to understand human diversity; in the genetic study of Latin American populations, that tension is especially evident, and is part of what constitutes Latin America as an interesting site for global genomic science. I then address the issue of the "relation" between "science" and "society," outlining a perspective that avoids this dualism and sees scientific and political practices and ideas as elements in a complex assemblage, rather than as two interacting domains; I explore the concept of topology as a way to characterize the networks involved in the assemblage.

In chapter 2, I look at genetic studies carried out from the 1940s to the 1970s. These focused mainly on indigenous peoples, but necessarily explored processes of mestizaje. The studies took place at a time of a global shift toward antiracism, which depended on a strict divide between biology and culture, heralded by Franz Boas in the 1930s, and which undermined the authority of the concept of race (without abolishing it altogether). This divide, so necessary to the antiracist agenda, was, however, routinely confounded in Latin American eugenics. Eugenic discourse varied in how explicit it was about race—the concept was deployed openly in Colombia and Brazil, but not in Mexico—but like eugenics elsewhere, only more so, Latin American eugenicists emphasized the role of social hygiene, as well as manipulation of biological heredity, and did so into the 1950s. A familiar discourse was established during this period of seeing the mestizo as the norm and the indigenous and black populations as distinct entities that were backward and peripheral, in need of assimilation to modernity; Europeans and whites were seen as the most desirable and advanced types.

In the blood type studies that began in the 1940s, the divide between culture and biology was again confounded insofar as cultural and biological mixture, while at one level recognized to be distinct processes not necessarily in synchrony, were, at another level, seen to go hand in hand, opposing biocul-

tural purity to mestizaje. The concept of race itself, as a biocultural entity, continued to be used in the early part of this period; it did not disappear over time, but instead became reconfigured toward the simply biological, without, however, losing its entanglement with cultural dimensions. In any event, the interest in mixture entrained the concept of relatively pure foundational populations. This chapter gives historical depth against which to compare the genomics of the 2000s: despite the new technologies used from the late 1990s, there is a great deal of continuity in the way human diversity within the nation is presented and the social implications of mixture drawn out.

Chapters 3–7 are an extended examination of genomic science and its participation in multiculturalist assemblages in each nation, drawing on data collected during a three-year research project "Race, Genomics, and Mestizaje in Latin America."[4] The first, chapter 3, describes the changes in genetic science from the 1990s, and then outlines the shifts toward multiculturalism in Brazil, Colombia, and Mexico, highlighting the higher public profile of race in Brazil, with its state-driven, race-based affirmative action program; the conflation of racial and regional diversity in Colombia and its relatively radical multiculturalist policies; and the lower public profile of race in Mexico, where a top-down multiculturalism is organized around the classic division between indígenas and mestizos.

Chapter 4, on Colombia, starts with a look at the Great Human Expedition (1988–93), a university-based multidisciplinary initiative, led by geneticists, which coincided with the beginnings of multiculturalist reform in the country. The project sought to map the biological and cultural diversity of the nation by focusing on its peripheral—indigenous and black—populations, described as "isolated communities." These were seen as the opposite of mestizaje and thus implicitly pure (although the language of purity was not used) and in need of salvage anthropological and genetic research before mestizaje wiped out their distinctiveness. This project also reproduced the connection between region and race, which is a powerful characteristic of Colombia. Although the term *race* was rarely used in the publications of this project, racialized terminology was employed (*negro*, indígena, mestizo, and, occasionally, Caucasian). These features were particularly evident in the work of a pioneer geneticist, Emilio Yunis, who used a language of race and talked about the regional-racial fragmentation of the country, which he saw as a problem. While he thought mestizaje had historically created exclusion and oppression in Colombia, this was because it was incomplete: he also saw it as a force for future democracy and national unity.

More recent genetic studies reproduce the correspondence between racialized category and region, and even use local indigenous and black communities as proxies for parental Native American and African populations, thus linking these communities to the past. The chapter then explores the case of a regional population—the Antioqueños—described by geneticists as an isolate and as having specific genetic characteristics, a description which tallies with historical and popular descriptions of them as culturally distinctive. The chapter ends with an example from forensic genetics that clearly shows how ingrained ideas about race and region are reproduced in scientific work, despite their technical redundancy. This chapter explores key themes of the book in concrete contexts—the entanglement of the biological and the cultural (genetics and region) to enact racialized concepts of the nation, the tension between purity and mixture (isolated communities as being the opposite of mestizaje and as representative of parental populations; certain regional populations as isolates), and mestizaje as having the potential to democratize, but also to hierarchize.

Chapter 5 moves to Brazil, where multiculturalism has been much more controversial, primarily when it takes the form of policies establishing race-based quotas for admission to higher education, but also when it shapes state-driven health care programs. Critics of quotas recognize that Brazil has a very unequal society, and the democratizing aims of multiculturalist policies were not necessarily challenged—just the particular way in which the state chose to implement them, which went against the grain of Brazilian reality by emphasizing inequality of race, rather than class. A prominent critic of quotas is the geneticist Sérgio Pena, who uses genetic data to argue that race has no biological reality and therefore cannot form a basis for social policy; other critics also deploy his data to affirm the commonality of all Brazilians as mixed and to challenge the existence of a collective category of Afro-Brazilians, who are the object of affirmative action policies. Pena wants genetics to act as a mandate for social policy, entangling biology and culture in two ways: at a general level, the nonexistence of racial categories in genetic terms should mean their nonexistence in terms of social policy; yet at an individual level, DNA tests were seen as having the power to define the reality of a person's identity. Defenders of the quotas argue that biology is irrelevant to social policy, that the nonexistence of race as a genetic object does not prevent racial classifications from driving racial discrimination, and that social policy should address this.

Multiculturalist policies in the area of health provision have been less controversial because these aim to collect data using racial categories (an estab-

lished census practice), sensitize health workers to issues of racism and racial difference, and involve black social movement activists in the design of health policy. The link between racial classification and access to state resources is thus less obvious than in the quota system, which individualizes this link. Overall, in Brazil, genetics has been used to challenge state multiculturalism and reassert the shared mestizo character of all Brazilians, providing the basis for an image of Brazil as a racial democracy.

The next chapter, on Mexico, focuses on the top-down, state-driven character of genomic research, channeled by a state health institute, INMEGEN (National Institute of Genomic Medicine), with a public health agenda and a goal of genomic sovereignty (Mexican control over Mexico's genetic resources, seen as unique). Issues of multiculturalism were not directly addressed in genomic research, but were tacitly implied in the representation of the country as mainly mestizo, with a defined number of indigenous communities located within the nation as bounded units. Genomic sampling practices enacted indigenous communities as bounded and relatively pure, and assumed that other subjects were mestizos. Evidence of genetic mixture among indigenous people did not mean they were mestizos, because cultural criteria were used to define the mestizo/indigenous boundary. But this boundary also shaped the way genetic data were collected and interpreted, and the genetic data could then be seen to reaffirm the cultural boundary. In other words, Mexican genomics practice reiterated the basic elements of indigenismo (a state practice that venerated the indigenous past and tried to protect present-day indigenous populations, while also guiding them toward assimilation) and mestizaje (which saw Mexico as built on mixture and the assimilation of difference into a shared mestizoness). Unlike Brazil, where the basic character of the nation was up for discussion—should there be separate racial categories or not?—in Mexico there was a broad consensus on what the nation looked like: a dominant mestizo majority (suffering from problems of obesity and diabetes), with isolated indigenous groups (whose genetic inheritance was possibly part of the reason for mestizos' health problems).

Chapter 7 sums up the preceding four chapters by looking at Colombia, Brazil, and Mexico in comparative perspective and assessing the continuities between the earlier and later periods described in chapters 2 and 3. Common to all three countries and both time periods is the reiteration with genetic data of the image of a mestizo nation, with relatively pure original components— black and indigenous communities—encysted in the national territory, and associated with the past and the periphery. This is the way the tension between

democracy and hierarchy has traditionally been handled in Latin America: it allows the coexistence of these opposite elements by locating the subordinate categories outside of modernity.

The idea that a highly racialized society gives rise to a highly racialized genomics—which could be a conclusion drawn from focusing on the United States alone—is nuanced by the material from Brazil, Colombia, and Mexico: in Brazil, arguably the most racialized of the three, genetics has been deployed to contest that racialization and genetics itself is more deracialized than in Colombia, where race has a lower institutional profile than in Brazil. The dynamic tension between purity and mixture is played out in different ways in each country, with mixture being attributed a democratizing power and also being defined in relation to (relative) purities, which symbolize hierarchy and inequality.

Chapter 8 turns to the gendered aspect of mestizaje, exploring narratives which describe European men having sex with indigenous and African women. Genomics addresses this with data about mitochondrial DNA (mtDNA, inherited via the maternal line) and Y-chromosome DNA (inherited by men from their fathers). The fact that many mestizos have African-origin and Amerindian-origin mtDNA in their genomes is taken as proof of interbreeding between European men and indigenous and African women at some time in the distant past, and this evidence of early mestizaje is used to promote antiracism. Yet the data paint a picture in which European men are given sexual agency and assumed to be dominant, while indigenous and African women are seen as passive recipients, and black and indigenous men (and European women) are placed in the background. This highlights the fact that mixture always involves sexual relations, which automatically places family and kinship at the center, but the democratizing and inclusive potential entailed by locating questions of racial difference in the context of family relations is undermined by the fact that families also provide a context in which racial difference and exclusion can be dramatized and accentuated.

Chapter 9 uses data drawn from focus groups and interviews with "ordinary" members of the public (in practice, mainly university students), who had little vested interest in DNA ancestry testing, although a subset of them were volunteer participants in an international genomic research project that included a DNA ancestry test. These people were often motivated by "curiosity" about their ancestry. The aim of this chapter is to assess whether and to what extent people's understanding of ancestry, race, health, and diversity in the nation is being transformed by the public presence of a genomic idiom in which to talk about these things. The conclusion is not only that people

assimilate new data about genetic ancestry to existing ideas about genetics, which have long formed part of the basic conceptual tool kit of many people in Latin America, but also that they tend to see the data as confirming things they already knew or thought. Genomic data simply provide an additional idiom to talk about things such as mestizo, black, indigenous, white, European, African, race, nation, population, ancestry, and heredity, which are all resilient categories that have circulated around science, politics, education, and everyday knowledge for a long time.

NOTES

INTRODUCTION

1 In this book, I will only use *mestiçagem* when referring specifically to Brazil.

2 *La raza* in Latin America can refer to "a people" conceived as a biocultural unity; for example, *la raza colombiana* means "the Colombian people," understood to share biology, history, and culture. This book title therefore can mean "the problems of race in Colombia" but also "the problems facing *la raza colombiana*."

3 See Wade (2010, 2015:ch. 6), Sanchez and Bryan (2003), Psacharopoulos and Patrinos (1994), Telles and Project on Ethnicity and Race in Latin America (2014). On Mexico specifically, see also Moreno Figueroa (2010, 2012), and Sue (2013).

4 For details about RGMLA, see the preface.

CHAPTER 1 · Purity and Mixture in Human Population Genetics

1 Lateral gene transfer occurs when genetic variants are transferred horizontally between genealogically distinct lineages (common among microbes); hybrid species are created when two different species breed to produce a new fertile species (which contradicts the standard definition of a species); a polygenomic organism is one that hosts different genomes, whether from the same species (e.g., a chimera) or different species (e.g., the ratio of microbial to human cells in a human body was widely reported to be 10:1, although this figure has recently been revised down to 1:1 [Campbell 2016]).

2 In GWAS, it is important to make sure that cases and controls are matched for BGA (i.e., population stratification is controlled for). If people with a high proportion of a given BGA are overrepresented among cases, genetic variants that are associated with that BGA will show up as candidate genes, even if they have no influence on the disease.

3 See Paz's analysis of this well-known Mexican phrase, which is usually translated as "son of a bitch/whore," but really means "son of the act of fucking up/over" (Paz 1950).

4 In 2009, I participated with colleagues in a research group in the ESRC Centre for the Research on Socio-Cultural Change (CRESC), hosted by the University of Manchester and the Open University. We discussed the concept of topology at some length, and I am indebted to these discussions.