Edited by
Katharina Schramm
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Identity Politics and the New Genetics

Re/Creating Categories of Difference and Belonging

Volume 6 of **Studies of the Biosocial Society**

Identity Politics and the New Genetics

Studies of the Biosocial Society

General Editor: **Catherine Panter-Brick**, Professor of Anthropology, University of Durham

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Berghahn Books
New York • Oxford

First published in 2012 by

Berghahn Books
www.berghahnbooks.com

Open Access ebook edition published in 2019

Library of Congress Cataloging-in-Publication Data

Identity politics and the new genetics : re/creating categories of difference and belonging / edited by Katharina Schramm, David Skinner, and Richard Rottenburg.
p. cm. -- (Studies of the biosocial society v.6)
Includes bibliographical references and index.
ISBN 978-0-85745-253-5 (hardback : alk. paper) -- ISBN 978-0-85745-254-2 (ebook)
1. Human population genetics. 2. Race. 3. DNA. 4. Genomics. 5. Genetic engineering. I. Schramm, Katharina. II. Skinner, David, 1960- III.
Rottenburg, Richard. GN289.I34 2011 576.5'8--dc23
2011029419

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN 978-0-85745-253-5 hardback
ISBN 978-1-78920-471-1 open access ebook

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Acknowledgements

In the summer of 2007 some of the authors who are assembled in this volume met for a workshop on 'Race, Ethnicity, Genetics' at the Max Planck Institute for Social Anthropology in Halle, Germany. The workshop was organized by Katharina Schramm and generously sponsored by the 'Asia and Africa in World Reference Systems' Graduate School (now the 'Societies and Cultures in Motion' Graduate School) of the Martin-Luther-University Halle-Wittenberg as well as by the Max Planck Institute for Social Anthropology and the Research Group Law, Organization, Science and Technology (LOST) in particular. Our thanks go to these institutional bodies for making our convention possible. The workshop benefited greatly from the contributions of all participants. Special thanks go to Suman Seth and Ina Kerner, who enriched our discussion tremendously but who are not represented here. Michi Knecht and Eliza Slavet joined our conversation for some time as well. Thanks go to Michi Knecht for inviting Katharina Schramm to participate in a conference on 'Genealogical Practices', which took place at the Institute for European Ethnology, Humboldt-University Berlin, in December 2007.

In March 2008 David Skinner and Katharina Schramm held a workshop at the Justice and Communities Research Unit (JACRU) of Anglia Ruskin University in Cambridge, entitled 'Genetics, Culture and Ethnic Identity: A Multi-Disciplinary Symposium'. We thank Bronwen Walter and Peter Forster for contributing to this event and to all participants who took part in our discussions there.

David Skinner would also like to thank Sahra Gibbon and colleagues for the invitation to participate in the workshop 'Genetic Admixture and Identity in Latin America' held at University College London in February 2009.

We are very grateful to the 'Studies of the Biosocial Society' series editor Catherine Panter-Brick who embraced our project from the very beginning with great enthusiasm. Ann Przyzycki at the Berghahn Books office in New York offered prompt advice whenever the need occurred. Many thanks go to Jos Lammerts who communicated back and forth with our authors and helped us with the tedious job of formatting and indexing the manuscript.

The pertinent comments of our two anonymous reviewers encouraged us to sharpen the arguments pursued in this book. We hope that we did justice to them.

Katharina Schramm, David Skinner and Richard Rottenburg
September 2010

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INTRODUCTION
Ideas in Motion
Making Sense of Identity Politics and the New Genetics[1]

Katharina Schramm, David Skinner and Richard Rottenburg

Contemporary politics of identity are often marked by a high level of emotional and political commitment on the part of the actors involved, and they remain a site of continuous contestation. Not only are they influenced by various historical ‘presences’, to borrow a phrase from Stuart Hall (1990), or by their respective social, economic or religious intersections, they are also inspired by developments in the life sciences. The sequencing of the human genome has been a decisive step in this direction, propelling old nature/nurture debates into a new terrain. How genetic, environmental and social factors interact in the production of life, in people’s susceptibility to certain diseases or, in a more general sense, in the making of persons and relations has increasingly become an issue of debate. Neither genetic determinism nor social constructivism alone can sufficiently address such questions (cf. Duster 2003a; Hacking 2005; Hartigan, Jr. 2008; Pálsson 2007). In biological science, authors such as Richard Lewontin (1983) or Susan Oyama (2000) have for quite some time argued against the limitations of a dichotomized understanding of nature against nurture and have consequently favoured a more encompassing understanding of developmental systems instead. In Oyama’s words: ‘Inheritance can be identified with “nature” only if it embraces all contributors to that nature, and nature does not reside in genes or anywhere else until it emerges in the phenotype-in-transition. Nature is thus not properly contrasted with nurture in the first place; it is the product of a continual process of nurture’ (2000: 71–72). This understanding of processuality and mutuality has also been reflected in recent social science research on the life sciences and the construction of knowledge therein (see Bauer and Wahlberg 2009; Franklin 2007; Lock 2005; Lock and Nguyen 2010). Epigenetics, that is, the study of the complex and variable conditions for gene-expression and trait-inheritance (see Jablonka and Lamb 2005), has been a recent buzzword that has also been associated with the possibility of fruitful exchanges and cooperation between the life sciences, social sciences and humanities (see Weigel 2002), a promise that has not yet been fully explored in practice.[2]

Nevertheless, a transdisciplinary awareness is important. The new genetics is part of changes that have a direct bearing on the notions of self and relatedness as well as on the conceptualization of risk and responsibility. On another level, genetic knowledge is closely interlinked with group taxonomies and the establishment as well as extension of boundaries. It may therefore have profound (and perhaps unexpected) impacts on existing categories of belonging and difference – pushing identity politics towards the 'nano-level' (Gilroy 2000). With regard to the highly charged concepts of race, ethnicity and national belonging, this has two dimensions. On the one hand, genetic knowledge has been evoked in order to refute the biological basis of social categories. Genetics, so it was widely claimed after the sequencing of the human genome, may serve as definitive proof that diversity within any chosen group was at least as important as variations between groups (see AAA online project: 'Race: are we so different?', http://www.understandingrace.org/home.html).[3] Hence, it seems that racial science and racisms rooted in scientific or pseudoscientific biological determinism have finally been worn out. And yet race talk as well as ethnicity talk have gone through a remarkable renaissance in the past few years – be it in the field of medicine (with the design of 'race-specific' pharmaceutical products), forensics (with racialized genetic profiling), population genetics (equating groups, territory and DNA markers) or the recent developments in popular genealogies, where genetic ancestry testing has become fashionable. Some of the theoretical assumptions as well as of the practical applications of the new genetics (and of DNA-testing in particular) thus reinstate racial science, albeit on a different scale, as the equation of phenotype and character has given way to the analysis of 'junk-DNA', single nucleotide polymorphisms (SNPs) and haplogroups, which are not necessarily connected to specific genes (see Abu El-Haj 2004, 2007).

In the wake of these developments, our book explores new social and conceptual spaces unfolding between genetic research and technologies on the one hand, and the social and political construction of identities on the other across a range of different settings. It considers how in a genomic age, science and the politics of race, ethnicity and nation facilitate (or at times contradict) each other. In doing so, it suggests the limits of thinking in terms either of science influencing politics or politics influencing science, but rather points to the coproduction of both (Jasanoff 2004; Latour 1987). In this we can chart the emergence of a novel and diverse 'biopolitics' that has global, national and local dimensions; genetics becomes part of a discussion about globalization and change in specific localized regimes of race-thinking.

Consequently, we ask about the ways in which existing social categories are both maintained as well as transformed at the interface of science and politics. Our approach recognizes that any contemporary exploration of genetics and race, ethnicity and national identity must extend to their diversified and variable expressions in the idioms of kinship and/or citizenship (see the contributions by Nash, Schramm, Vaisman and Wade to this volume). To explore change we must locate genetics alongside adjacent contemporary trends, most notably the preoccupation with origins and personal discovery (see especially the contributions by Nash, Palmié, Schramm and Sommer), but also the ongoing use of racial and ethnic categories in social policy (see the contributions by Skinner and Vaisman) and medical research (see the contribution by Smart et al.). In order to examine the nuances of these processes, we take an actor-centred approach, looking at various scenarios where genetics becomes the stuff of identity and identity politics. The concept of identity politics is thereby not taken for granted, but is rather unpacked on various levels, i.e., the formation of classifications (Skinner, Smart et al. and Wade) and gene/alogical knowledge (Nash, Palmié), the transformations of race/kinship congruity (Wade), the application and negotiation of social categories in forensics (Skinner, Vaisman), the historical formation of political and cultural identities and their re/location in the realm of the biological (Sommer), the congruence of popular culture, consumption and new genetic technologies (Nash, Schramm and Sommer) as well as the implicit and explicit gendering of gene/alogies (Nash, Schramm).

In doing this, however, we acknowledge that, whatever the importance of 'identity' as a category of practice used by actors, the term has become stretched and overworked to such an extent that some theorists suggest it has little analytical worth (Anthias 2002; Brubaker and Cooper 2000; Comaroff and Comaroff 2009; Handler 1994). Certainly, the concept of identity allows us to talk of different dimensions of sameness and difference, individuality, community and solidarity all at once, but, in doing so, it can obscure the variety of processes grouped under the one umbrella term: these include external categorizations, subjective experiences and accounts of social location.

New genetics clearly connects with a growing preoccupation with ethnicity as a personalized process of active identification and a growing interest in the complexity of origins and ancestry, but this is only part of the story. DNA analysis, often perceived as a straightforward and infallible means of identification, may not only confirm but may also contradict an individual's previous self-ascription (see Vaisman, this volume). In some cases, this can lead to crisis, while in other cases, the DNA-based 'evidence' may be ignored and other means of determining belonging may be privileged (cf. Prainsack and Hashiloni-Dolev 2009; see also Schramm, this volume). Whatever the case may be, these processes never occur outside the political realm, but are rather deeply implicated in it. This becomes more evident if we consider that DNA identification is not just about the self, but always encompasses the external observation and organization of people in groups. A discussion about identity also quickly becomes one about the practices of categorizing people and categorizing genes. Official, standardized systems of racial classification and data collection are integral to public life in many locales. As the contributions by Palmié, Skinner and Wade to this volume demonstrate, the new genetics connects with and feeds off this in a number of significant ways. Moreover, categorizations can often be contested and contradictory (see especially Nash, Schramm and Sommer, this volume). The attempt to reduce race and ethnicity to statistically constructed genetic markers not only ignores the diversified histories of racial formation in various local settings but also erases other differences between group members such as class position and gender.

Thus, recent changes involve both a retooled politics of racialized identity *and* a reconfigured politics of racializing knowledge. This requires an appreciation of the changing conditions of production and consumption of expertise about race, ethnicity and racism. We must ask how, when and why issues are discussed in terms of racial and ethnic differences, and who claims expertise on race and ethnicity. An analysis of the changing methods and technologies for the management of racialized data is also important.

Discussion of race and the new genetics has tended to focus on the ways in which biological accounts of sameness and difference may or may not trump social accounts. But, as the chapters in this book illustrate, biological accounts now and in the future will interact with but not necessarily overwhelm other ways of making sense of difference and similarity. To set the biological against the social may downplay the novelty of the current situation. The molecular gaze has enabled the pursuit of new paths for the (re)formation of boundaries and the classification of groups and individuals. This is not, however, the institutional, intellectual or political triumph of biological determinism or even of biological essentialism. Genetic classifications have an ambivalent position in contemporary processes of political institutionalization and subject-making. Conceptions of racial and ethnic divisions have always involved equivocations around determinism/plasticity, difference/sameness and nature/culture. Yet these dualisms and the moves between them take on a distinctive form and particular importance in a postgenomic world. One element is the shifting combinations of biology/society or nature/culture at play. But there are also signs that the distinction between the biological and the social is beginning to lose its analytical stability and political force in discussions of race, ethnicity and racism.

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We would like to illustrate these dynamics (and the complications arising out of them) by taking a closer look at a setting where racial classifications have always played an important, though highly ambivalent, role in public life. Brazil is one of the most unequal societies in Latin America. It is also often claimed that it has more people of African ancestry than any other country outside of Africa. The Brazilian population is largely descended from African slaves (slavery was only abolished in 1888), indigenous Amerindians, European colonizers and later European and Asian migrants. Brazil has a national story (for both internal and external consumption) that celebrates admixture in its population as well as its cultural makeup. There is a history of racial classification in Brazil – both folk and official – based on variations in skin tone. But between *branco* and *negro* lie a complex set of self-referencing categories to encompass admixture. Classification into these categories varies by region and situation. In contrast to, for example, the U.S.A., where studies suggest that a significant number of self-identified 'whites' actually have African heritage, 'whites' in Brazil celebrate their own and the nation's mixed heritage (see, for example, Santos 2009). However, the portrayal of Brazil as a harmonious 'racial democracy' has been challenged by academics, politicians and campaigners highlighting the impact of racism and understanding inequalities in racialized terms. These actors do not view the celebration of 'mixture' as an adequate counter to racism in Brazil, instead arguing that the first step to address race inequality is to recognize the reality of race difference (see the contributions in Hanchard 1999).

The reforming populist Lula government that ruled Brazil from 2002 to 2010 was associated with a newly assurgent Black Movement. It established a Special Secretariat for Policies for the Promotion Racial Equality and set out to address racism and racial disadvantage via affirmative action – notably by encouraging universities to reserve quota places for black students. This strategy was dependent on a biracial approach in which, at points, people not normally deemed *branco* or *negro* were either ignored or subsumed into black and white categories. This political and policy shift has prompted what Peter Fry (2009b) terms a 'taxonomic war', with both social and natural scientists participating in a debate about the legitimacy of the categories and systems of categorization on which schemes for affirmative action depend. Social scientists are amongst both the most fervent supporters as well as the most impassioned opponents of the use of racial categories in this process. Significantly, those concerned about the fairness, practicality and unintended negative consequences of racial quotas have also utilized evidence from population genetics that highlights the admixture of the Brazilian population and suggests that skin colour in a country such as Brazil is a weak indicator of genetic ancestry.[4] Here, genetics is mobilized, as one vocal opponent of racial quotas in university entrance (Manolo Florentino, Head of the Social History Department at the Federal University of Rio de Janeiro) puts it, to 'show race is a failed concept in Brazil' (Salek 2007).

The reliability and validity of racial categories and the processes used to place people into quota categories have also become a pressure point in Brazilian debates over affirmative action. Controversially, the University of Brasilia appointed a commission made up of a sociologist, an anthropologist, a student and representatives of the Black Movement to judge who should benefit from quotas using photographs and (where necessary) other 'cultural' evidence (Santos and Maio 2004).[5] More typically, however, 'self-identification' has been utilized as the key basis of categorization. Opponents focus on the potential inconsistencies and, tellingly, on occasion utilize genetic evidence as part of this critique. Early in the process, in 2003 José Roberto Pinto de Góes, Professor of History at the University of the State of Rio de Janeiro (UERJ), encouraged all university applicants to self-identify as black or brown:

> If you are applying for UERJ's next entrance examination, say you are black or brown … You won't be lying. You might not know, but you are half African too. We are all Africa's breed, whatever the colour of our skin. Only those people who do not know or do not accept our history ignore this fact. Say you are black; say you are brown, for they want to steal your soul … (Quoted in Tavolaro 2008: 150)

Supporters of quotas argue that genetics should not be used to undermine antidiscrimination policies: it is social divisions, not genetic similarities that are the key. David dos Santos, a priest who coordinates a scheme to prepare poor Afro-Brazilians for higher education, is quoted by the BBC as saying: 'I've never seen a policeman asking for a genetic ID before stopping someone. In Brazil, discrimination is based on appearance, not on genes …' (Salek 2007).

For opponents, racial quotas depend on forms of rigid, exclusive race categorization inappropriately transplanted from North to South America. This is in some ways a continuation of an older argument put forcibly by Pierre Bourdieu and Loïc Wacquant (1999), who characterized the imposition of U.S. categories into Brazilian society as cultural imperialism.[6] But what is striking is the way in which this current debate has two registers: one focusing on variations between the Brazilian and U.S. social and political settings, and the other on variations in the genetic composition of the two populations. This is evident in an 'Open Letter Against Race Laws' published in 2008 and signed by 113 left-wing academics, teachers, lawyers, writers, artists and trade unionists, which argued: 'DNA research allows us to conclude that, in 2000, there were around 28 million Afrodescendants among the 90.6 million Brazilians who declare themselves as "white" and that, amongst the 76.4 million who declare themselves "pardo" or "black", 20% had no African ancestrality whatsoever' (Brazilian Black Socialist Movement 2008).

This position, however, is not without its own contradictions. It is worth considering how and why opponents of quotas should choose to utilize genetics alongside legal, political and sociological arguments. Lilla Tavolaro's (2008) analysis of the implementation of affirmative action at the State Universities of Rio de Janeiro and the Federal University of Brasilia is useful here. Tovolaro shows that while the notion that affirmative action and its associated 'race assertive' politics simply discloses and challenges pre-existing race divisions in Brazil is dubious, the same is true of the alternative position that dismisses them as an alien import 'imposed from abroad, but also incompatible with the Brazilian symbolic order and system of racial classification' (2008: 146). As Tavolaro points out, this second position holds to a static view of national and social identity (see Hanchard 2003).[7]

We can extend this argument when considering the rhetorical use of genetics: for all its claims to problematize 'race', science is ultimately used to support an essentialist view of Brazil and Brazilians. From this standpoint Brazil is not just fundamentally different from the U.S.A. in its history and culture but also in its population genetics; in particular, 'white' Brazilians are not like 'white' people in the U.S.A. (Pena 2009). In other words, 'science' reproduces, microbiologically, the very terms around which national racial ideologies revolve, thereby affirming or contesting – but not actually transforming – those terms (Palmié 2007).

Our Brazilian example shows some of the diverse and sometimes surprising ways in which the new genetics is implicated in the contemporary politics of race and racism and of national identity. How can we develop a fuller appreciation and a more general examination of these developments? While complex and varied, there are patterns here. In the sections that follow we make sense of change in terms of ideas in motion. Ideas (and practices) about race, ethnicity, racism and identity – in other words, about belonging and exclusion – travel across time, between locations, between institutional settings, between spheres of expertise, and between experts and the lay public. In transit, these ideas do not remain the same, but are rather reinterpreted and remade – a process we seek to follow and better understand through our various contributions.

In writing of travelling ideas, we recognize that, strictly speaking, ideas cannot travel on their own but need to be inscribed into objects that can be moved from one context to another without completely changing character. These mobile objects might include written text, a pictorical representation, a technological artefact, a model or a procedure for doing things. Nevertheless, since all objects hold meaning, are attributed with meaning and shape processes of sense-making, we can speak of travelling ideas as a useful shorthand for the processes of transmission, translation and transformation of both identity and genetics that we follow in this book. As the collection of chapters that follow will show, a full exploration of the movement of ideas involves an appreciation of both their immutability and their plasticity, and of both their capacity to change and to be changed by particular contexts (Czarniawska and Joerges 1996; Rottenburg 2009).

Ideas Travelling through Time

The politics of race and (genetic) science are rarely ever just about the present. The past and the future both loom large, be it in the projections of 'promising genomics' (Fortun 2008) that underlie the large DNA-databases that have been set up for medical and legalistic purposes (see Skinner, this volume) or in the 'backwards-orientedness' of genetic narratives that seek to deduce ancestral connections and movements from DNA samples (see the contributions by Nash, Schramm and Sommer, this volume). As Sarah E. Chinn has argued, in visions of a geneticized future:

> DNA is envisaged as answering a welter of knotted questions about ontology (Who are we?), etiology (Where did we come from?), taxonomy (Where in nature do we fit?), epistemology (How can we know the world?), teleology (What is our purpose?) and broadly speaking eschatology (What will happen to us?). These are heavy burdens for a set of molecules so tiny. (Chinn 2000: 144)

In the decade since Chinn wrote these comments, the discussion of the social and political implications of the new genetics has grown considerably and perhaps has also grown up. It is notable, however, how the sequencing of the human genome prompted both dystopian fears of a future triumph of biological deterministic racial science, through what has previously been termed 'geneticization' (Lippman 1991), and utopian hopes that new knowledge would finally end racism. The ensuing discussion of race and science was and is Janus-faced, looking backwards as well as forwards; dystopians fear the return of previously repressed scientific racism (e.g., AG gegen Rassismus in den Lebenswissenschaften 2009; Duster 2003b), whereas utopians in science (notably the founder of Celera Genomics Craig Venter, who co-announced the mapping of the human genome in 2000 – see, for example, *The Guardian*, 12 February 2001: 6) and social science (Gilroy 2000) seem nostalgic for a postwar model predicated on the hope or expectation that racism could be ended by expert reason trumping lay ignorance:

> It is impossible to deny that we are living through a profound transformation in the way that the idea of 'race' is understood and acted upon. Underlying it there is another, possibly deeper problem that arises from the changing mechanisms that govern how racial differences are seen, how they appear to us and prompt specific identities. Together these historic conditions have disrupted the observance of 'race' and created a crisis of raciology, the lore that brings the virtual realities of 'race' to dismal and destructive life. (Gilroy 2000: 11)

In many ways Gilroy's predictions still ring true, but there is little sign of the new genomic knowledge contributing to the building of a postracial world (or what Gilroy terms 'planetary humanism'). While genomics contains both messages of human similarity and human difference, the past decade has seen a growing preoccupation with difference, i.e., genetic variations between people who are grouped in populations alongside historically loaded and contested categories of race and/or ethnicity (Koenig, Lee and Richardson 2008: Introduction). These developments have made both the dystopian and utopian positions less plausible, revealing the weaknesses in their assumptions about the thrust of scientific work and the relationships between that work and the public sphere (Skinner 2006). Nevertheless, something new and significant is happening, something that cannot be fully grasped only by referring back to the history of racism and anti-racism (even though we agree that it remains important to acknowledge the past careers of the terms that we are dealing with).

There are three dimensions to the novelty of the current situation. First, genomics is part of shifts in understandings of what it means to be human: a number of commentators have shown how genomics raises new questions about self, difference and belonging, the distinction between humans and animals, male and female, and the meanings of 'natural ties' (Franklin 2007; Haraway 1997; Karkazis 2008; Lindee, Goodman and Heath 2003; Marks 2002; Valentine 2007). New genetic technologies change kinship constellations, 'cultures of relatedness' and the genealogical imagination (Carsten 2000; Finkler 2000; Franklin and McKinnon 2001; Rapp 2000; Strathern 1992; Wade 2007). The second dimension of change is the way in which biology – as an institutional and epistemic practice as well as in terms of the objects and products of that science – takes on a particular prominence in contemporary public life. Biology (and the life sciences in general) increasingly becomes an object of ethical debate, economics and political dispute to the extent that these are reframed as bioethics (Almond and Parker 2003; Brodwin 2005; Lösch 2001), biocapital (Fortun 2001; Sunder Rajan 2006), biosociality (Rabinow 1999; Gibbon and Novas 2008) and biological or genetic citizenship (Heath, Rapp and Taussig 2004; Kerr 2003; Rose and Novas 2005; Taussig 2009). Last but by no means least, genomics is a key element of what Franklin terms 'the denaturalisation of biology from within' (2001: 303). Science becomes about remaking or creating life, requiring a rethinking of what biology is and defamiliarizing 'the biological' (ibid.; cf. Franklin and Lock 2003).

These broader developments are the context in which discussions of race, ethnicity, citizenship and genetics should be placed. The tropes of race and ethnicity represent a familiar organizing principle by which new biological data can be classified and thereby made sense of. But there is much here to make us reconsider old certainties about race, racism, ethnicity and identity politics in a wider sense. As charted, for example, in the contributions by Nash, Palmié, Schramm and Sommer in this volume, biological knowledge is increasingly presented as providing answers to questions of origins and ancestry through genetic ancestry testing and population genetics. Consumers can purchase a range of tests that pretend to explore connections via 'genetic ancestry', such as the the Native American Test, the Cohanim Modal Haplotype Test, the Hindu Test and the Genghis Khan Test (Greely 2008). This information is also provided as an add-on to commercial health testing services such as 23andMe or deCODEme (cf. Lee 2006).

The notion that genetic testing is a 'truth machine' (cf. Lynch et al. 2009) that shortcuts the complexity of ancestry and origins is now a familiar element of popular history and genealogy. The interface between biology and history in new genealogies and hence in the determination or contestation of racial and/or ethnic belonging is significant (see Parfitt and Egorova 2006; Sommer 2008). It raises new questions about the mythologizations of biological origins and their relationship with previous forms of identity construction around notions of autochthony, cultural authenticity and heritage – questions that are addressed in this volume by Nash, Palmié, Schramm and Sommer.[8] As the chapters by Vaisman and also to some extent Wade show, this entanglement of biology and history can also affect relationships of belonging on the more intimate scale of the family and its intrinsic connections to national ideas of community, kinship and relatedness.

The commercial services that provide testing for ancestry are closely intertwined with scientific programmes that seek to map (and consequently market) the genetic heritage or genetic diversity of particular locales and groups. The Human Genome Diversity Project, National Geographic and IBM's Genographic Project, the HapMap project or, most recently, the Human Heredity and Health in Africa Project (H3 Africa) all explore and valorize genetic differences as part of a global account of humanity and an emerging global market in what Sunder Rajan (2006) calls surplus health transformable into biocapital or what Palmié (this volume) terms 'identity goods'. As John and Jean Comaroff (2009) have recently argued in this realm, ethnicity (and, for that matter, race) gets 'incorporated' in a dual manner: as an existential ontological entity (situated in the body) as well as a commercial enterprise (firmly placed in the neoliberal framework of the market economy).

Racialized DNA has also become integral to the practices of the state and other key institutions, and through this has become part of our lives as citizens, patients, litigants, etc. Genetic evidence (notably in forensics and paternity testing) is a common feature of the legal system, criminal justice and immigration control (Lazer 2004). DNA is used to profile the ethnicity of crime suspects (see Skinner, this volume) and by courts to substantiate social relationships (see Vaisman, this volume).[9] Genetic medicine is also racialized in a number of key ways. This has prompted the latest twist in a longstanding set of debates regarding if, when and how to address racial and ethnic differences in health. Cause celebres such as the licensing of the 'ethnic drug' BiDil in the U.S.A. exclusively for African-Americans remain the exception rather than the rule. Jonathan Kahn (2004, 2008) and others are, however, right to alert us to the commercial imperatives driving these developments and the synergies between those imperatives and contemporary identity politics.

Taken together, genetic genealogy, population genetics, the focus on human genetic diversity, racialized biomedicine, pharmacogenetics and forensics point to a new context in which genetic knowledge and practice are part of (but do not shape on their own) novel forms of politics around race, ethnicity and racism. Biological knowledge and biological material become the stuff of identity formation and an object of struggle, as well as a resource in public debate in ways which can confound previous assumptions and faultlines. In the politics of identification, biological knowledge is both resisted and taken up, accepted and not accepted. However, such acceptance or rejection does not happen in a vacuum but needs to be authorized to 'stick'. Authorization (or successful mobilization) is the last step in a translation process where a novel idea is taken up in a particular context and translated into a new, after a while institutionalized practice that eventually appears to be the common-sense way of doing things (Callon 1986). Each context is characterized by power relations, unequal distributions of economic resources, material infrastructures, normative frames and webs of beliefs which all together shape the process of mobilizing actors for the new practice, i.e., they shape the authorization process. As we have indicated in this section, there are continuities as well as disruptions in the ways in which these authorizations work over time. In the following section, we consider how these mechanisms might vary according to different locations.

Ideas Travelling between Locations

As the Brazilian case illustrates, the new biopolitics has global (and globalizing) features but plays out differently in different locations. The notion of travelling ideas helps us to appreciate the uneven but interconnected spatial impact of new developments; these currents are by no means uniform or flow in a singular direction. With case studies covering Latin America (Wade, Vaisman), Africa (Schramm), Europe, i.e., Ireland (Nash), the U.K. (Skinner, Wade) and Switzerland (Sommer), as well as the U.S.A. (Palmié, Schramm) and the global scientific community (Smart et al.), our book covers a wide regional scope and has a strong comparative dimension. The various chapters show the importance of placing the practices of science, policy and identity in different social settings and they also indicate how in those settings we can see the interplay of local, national and global dynamics.

Significant here are variations at regional (the distinction between North and South America highlighted above is an obvious example) as well as national levels. These variations are both in terms of narratives of national belonging and of policy conventions of classification. They are not just discursive or organizational but pertain to the ways in which racism operates and race and ethnicity are lived across social and historical settings. A recurring preoccupation of the chapters in this book is with the ways in which genetic practice comes up against, challenges or is influenced by national regimes of truth about identity and belonging, and state-level processes of official classifications of difference. Crucial here are questions about the relationship between classification, power and governance, which are not only important to the development of racism and oppositional consciousness but also to ideas about the national body in its institutional and ideological form.

An appreciation of differential contextual valuation of genomic data leads us to refine any simplistic assumptions about the 'impacts' of the new life sciences. This is not merely a celebration of the complexity of change but also reminds us of the relationship between different levels of analysis. The developments that we observe in the field of the new genetics are not just about (changing) relationships between people (and other species and things) but also about changing relationships between places. These are often due to an unequal circulation of scientific knowledge and models of governmentality as well as to the particulars of local translations of circulating ideas.

Given the global influence of U.S. natural and social science and the U.S.A.'s profile as a thoroughly racialized social formation (see Omi and Winant 1994), it is perhaps unsurprising that the North American experience has become a focus for discussion of the processes whereby race and genomics combine. This has potential drawbacks: for all the merits of work such as that collected in Koenig, Lee and Richardson (2008), it focuses almost exclusively on the U.S.A. in isolation from other settings. The U.S.A. has a distinctive history and politics of racialized identities that cannot be assumed as universal or typical. The approach typified by Koenig, Lee and Richardson not only precludes the analysis of territorial variations but also of the intellectual, commercial and policy influence of the U.S.A. (and the limits of that influence) on other parts of the world. We are not the first to make this point; Rose (2007) and others argue that a preoccupation with U.S.-based case studies and concerns distorts global discussion of race and genomics. But, as the contributions by Wade, Skinner and Sommer in this volume indicate, the non-transferability of the U.S. model should not lead to the smug assumption that race is an American hang-up or that racism is an exclusively American problem.

Instead, our book explores the complex entanglements of local, national and global histories, and we analyse the manifold connections between these levels, as they have shaped specific interfaces of genetics and identity politics. Michael Jackson (2002) rightfully points out that the new genetic technologies do not enter the global scene unmarked, but are rather implicated in existing global patterns of inequality and injustice. Not all people occupy an equal position in the emerging 'imagined genetic communities' (Simpson 2000; see also Rotimi 2003), and their involvement in the global 'risk society' (Beck 1986) differs accordingly. Drawing on the case of the New Zealand Maori's perception of (and reaction to) technologies of genetic modification (GM), Jackson demonstrates how epistemological concerns that take their root in culturally specific understandings of life and genealogy (*whakapapa*) are deeply ingrained in ongoing political struggles.[10] Through discussions of the Human Genome Diversity Project (HGDP), other authors have considered how the relationship between the West and the Rest is played out in the framing of the issue of genetic variation and conflicting claims to know and control bodies and histories (see Cross 2001; Marks 2001; Reardon 2005; Tutton 2004).

The transnational character of genetic practice can be analysed along two lines. First, science and capital are not confined to national borders but operate globally. Moreover, DNA- and tissue-samples are also collected on a worldwide scale and populations are designed (and affected!) accordingly (cf. Lock 2001; M'Charek 2005; Sharp 2000). Secondly, information about genetic technologies circulates globally, be it through the internet or other media sources. In addition, some of the commercial services associated with the new genetics (ancestry testing in particular) operate solely through the internet, connecting groups and people in new ways (see Nash and Schramm, this volume).

Global circulations of DNA technologies are one of the ways in which new genetics and with it new forms of race thinking spread around the world. Arguably, this implies a flattening out of differences in the many ways in which race is conceived in different locations and different contexts. Certainly, there are renewed attempts to standardize across temporal and spatial contexts – albeit in ways that are often actually confounded by local circumstances: as the case of biomedicine illustrates particularly well, the use of race categories in research is a dynamic compromise between local, national and transnational factors. Resilient though they are, local/ national systems of classification are changing and the practices of genetics and the controversies that accompany them are part of that change. Out of the tensions new typologies and methods of categorization may well emerge.

Ideas Travelling between Institutional Settings

A full explanation of the connections and disjunctions between different settings in which DNA is collected, stored and interpreted must also appreciate that 'race' and DNA are considered together in a variety of different kinds of institutional arrangements and under different systems of governance. Take, for example, 'the genetic test'. Understandably, much attention has been paid to the testing and storage of genetic material in health and associated medical research. Health is, however, only one route through which the genetic test enters the popular imagination and everyday life. Testing for paternity and testing for ancestry (as part of a genealogical project) and forensic testing have also become increasingly commonplace (see the contributions by Nash, Schramm, Skinner, Sommer and Vaisman, this volume). As Greely (2008) remarks, a single genetic ancestry test can have multiple objectives, including presuming geographic and ethnic origins, finding relatives on the database, checking for links between two people both submitting samples, etc.

There is a technical connection between different tests (they use the same techniques and sometimes the same laboratories). There is another connection in that the prevalence and status in some spheres (providing very precise information on criminal guilt, paternal ties or, in the case of monogenetic disorders, disease susceptibility) gives credibility to genetic practice in other spheres (such as genetic ancestry testing or ethnic profiling of crime suspects). Yet these are settings where experiences, reality assumptions, epistemologies and the associated identity politics can be quite different and partly contradictory. In some spheres genetic testing has achieved technical stability and scientific status, and has accordingly been blackboxed in routine applications. In other cases genetic testing is carried out at the margins of institutionalized science and still has limited professional or public credibility.

Genetic tests for risks of ill health, to prove rights of settlement and citizenship in migration cases, to confirm family ties and obligations, for retelling a narrative of roots, and to determine criminal guilt or innocence not only differ in terms of scientific validity but also differ in the kind of issues of relatedness and belonging they emphasize. They also take place under different conditions, have different kinds of consequences and rest on different relationships between tester and testee. One key variation is the degree of compulsion (legal, moral or familial) underlying the circumstances of testing. As the chapters by Vaisman and Skinner show, the subject position held by an individual in a given situation where genetic testing is employed may also lead to varying understandings of compulsion. Another axis of variation is the degree to which (and the way in which) the test is subject to professional and legal regulation. Also significant is the extent to which (and the way in which) results are interpreted with differing notions of the relative balance of professional expertise versus lay understanding and autonomy (cf. Gibbon 2007; Leach, Scoones and Wynn 2005; Tutton 2007).

Ideas Travelling between Fields of Expertise

As the discussion of testing above suggests, genomics requires or allows new kinds of expertise and expert practice in identity and identification. There are variations and connections to be considered between different realms of expertise (for example, between biomedicine – forensics – legislation – public policy and administration). A particularly important connection/disjunction (well explored in the contribution by Smart et al.) is that between social science and natural science.

A frequent concern raised by social scientists writing on race and genomics is that their disciplines risk marginalization in the face of the challenge of a reductionist life sciences intent on establishing a pre-eminent expert position on race and ethnicity. But if we consider the (changing) patterns of influence, tension and interplay between the natural and social sciences expressed in recent times, a complex picture emerges. We also find transdisciplinary efforts at establishing a common ground. A striking example for such a shared concern among social scientists and biologists about the use (and possible abuse) of racial categories in human genetics is the Open Letter that appeared in the journal *Genome Biology* in 2008 and was authored by a group of faculty from the humanities, social sciences, life sciences, law and medicine at Stanford University. The letter asks for the establishment of an 'ethics of characterizing difference' (Lee et al. 2008), warns against a careless application of ethnic and/or racial labels in biomedical research and, above all, calls for more dialogue between the different fields (for a similar initiative, cf. Caulfield et al. 2009).

However, such multidisciplinary endeavours are the exception rather than the rule. More conventionally, both social scientists and natural scientists frequently seek to deal with conceptual and political dilemmas about race, ethnicity and racism by delegating and deferring to each other. Social scientists often tend to cite natural science as evidence to problematize the race concept and the ideology of racism (Skinner 2007). Natural scientists, on the other hand, have regularly sought to contract out the practical and ethical work of constructing legitimate categories for research to social scientists. Exemplary for this strategy is the so-called ELSI agenda that was founded as a subprogramme of the Human Genome Project and was assigned to investigate the ethical, legal and social issues associated with it (cf. Macilwain 2009: 841).

This is not to say that social and natural scientists necessarily approach problems of race, ethnicity and racism in the same way. Instead, they often operate in two distinct epistemic communities with different rules of dialogue and evidence. Both the natural sciences and the social sciences have 'community standards', but these standards can conflict. For example, natural scientists are likely to worry about the reliability of systems of classification that are too amenable to the variations across time and space, whereas social scientists worry about the validity of delocalized, standardized systems. Of course, we do not intend to 'naturalize' the differences between social and natural sciences, but rather we refer to a few general trends that we have observed in the discussions of race and genomics in the respective fields. Instead of assuming an incommensurability or struggle between the two fields of expertise, we should therefore ask how, when and why they do or do not work together.

Underlying exchanges across the natural and social sciences are ongoing concerns about the distinction between race and ethnicity as 'social' or 'biological'. Much social science is troubled by the implicit willingness of racialized genomics to consider that there is a biological reality to race, be it in terms of ancestral-cum-regional-cum-racial markers or in terms of the validity of racial self-ascriptions as a basis for categorization in biomedical research. By worrying in this way, they return to a touchstone of their academic tradition. The clear distinction between (false) biological differences and (real) social differences has underpinned much social science work on race and racism since the middle of the twentieth century (Skinner 2007), but in practice this apparently clear distinction has been hard to sustain, and recent developments suggest that a more differentiated analysis is needed.

While if we look hard enough we can find examples of writers who see the new genetics as confirming the proposition that race is biology and ultimately linked to destiny, these are not cutting-edge researchers (see, for example, Leroi 2005; Sarich and Miele 2004). More representative are the so-called 'race-realists' such as Risch et al. (2002) who hold on to the validity of racial self-categorizations in biomedical research. In this type of research, the politically overloaded notion of race oftentimes gives way to the idea of population. The latter is thought to be a more neutral term, as it is associated with gene-frequencies instead of traits and, at least in theory, acknowledges the clinal nature of such frequencies and the fluidity of boundaries between populations. However, critics of the 'race-realists' have argued that they 'repeat the mistakes of scientific racism by *the selectiveness of their attention*. Genetic claims are consistently and almost singularly made about black people, striving to posit something that makes them qualitatively or quantitatively distinct' (Richard Cooper et al., quoted in Hartigan 2009: 81, original emphasis). Obviously, the distinction between 'race' and 'population' is a thin line to tread, and authors such as the research team around Paul Martin, Richard Tutton and Andrew Smart have shown that these fine divisions are often blurred in scientific practice (see their contribution to this volume, Smart et al.).

Nevertheless, the point remains that the social and the biological are often hard to disentangle. For some researchers the aggregation of the social and the genetic is the best way to consider varying patterns of sickness and morbidity between different groups of people. It enables them to view the complexity and ambiguity of race/ethnicity as an asset – standing for bundles of bio/social factors that cannot and should not be disaggregated (Jackson 2001; Royal 2006). According to such a perspective, the high percentage of hypertension cases among African Americans is not simply due to the 'genetic bottleneck' of the Middle Passage but is rather the result of a combination of factors that have a lot to do with racism, including stress, class position, etc. Unless these are considered in medical research, the 'racial ascription' does not hold (cf. Duster 2003b).

Thus, the key issues here relate not to a battle between social and natural science or between biological and social accounts of race, but to the institutional, intellectual and political 'back and forths' between positions (Fullwiley 2007).

Ideas Travelling between Experts and the Public

It is worth at this point highlighting one aspect of the Brazilian case study that we took up earlier in this introductory discussion. The Brazilian debate was shot through with assumptions about the impact of expert knowledge and practice on everyday experience and identity. Opponents of racial quotas worried about the spread of rigid, U.S.-style forms of race thinking to Brazil with resultant social and political polarization, the fear being that social policy categories would remake racial identities in their image (see, for example, Fry 2009a, 2009b). Equally, as we have seen, supporters put their faith in other kinds of expertise (apart from genetics) to win the political argument. However, both sides in the controversy perhaps overestimate the ability of experts to shape public debate and popular understandings. Detailed qualitative studies suggest, for example, that Brazilians seem to be able to operate with official systems of categorization and continue to understand themselves in terms of mixture.

As the Brazilian case shows, 'the public' often preoccupies the experts as a generalized other who is watching, must be kept in mind and, most frequently, might misunderstand or misuse racialized categories and data (this general tendency is typified by the arguments in Kahn 2004). In contemporary settings, laypeople have a complex, active relationship with the new forms of expert knowledge (Collins and Evans 2002; Jasanoff 2006) – a situation that has been acknowledged in the broad research on newly emergent 'biosocialities' (Rabinow 1996, 1999), especially with critical regard to patient activism (cf. Gibbon and Novas 2008; Rabeharisoa and Callon 2002) and the new reproductive technologies (Strathern 1992), and is also well illustrated by the chapters on genetic ancestry testing by Nash, Schramm and Sommer in this volume.

Understanding the changing significance genetics holds for laypeople requires exploration of three related but distinct phenomena: the direct engagement between social actors with new biological knowledge and practice; the mediated engagement between public and representations of and debates around these developments in the press, on television and on the internet; as well as the changing place of science in public discourse and policy making (Collins 1988; Hilgartner 2000; Jasanoff 1994; Prainsack et al. 2008). Given that it underlies all contributions to this volume, a heightened awareness of these different levels of interaction will help us to understand the concrete translation processes that facilitate the travelling of DNA technologies between various contexts with very different levels of expertise and heterogeneous motives.

This perspective enables us to consider the role that the biological plays in everyday accounts and experiences of similarity and difference (as well as to better understand where and why biological factors might be ignored or discounted – see Johnston 2003). It also facilitates a thorough analysis of the performative dimension of identity politics, which is particularly relevant in the field of DNA testing and is as yet under-represented in academic debate.

The many ways in which natural and social scientists as experts of race and ethnicity come up against or work with laypeople are crucial to understanding the novelty of the current situation. Practical and political factors relating to both the conduct of research and the dissemination of findings draw genetic researchers into engagement with lay actors and policy categories. On a rather mundane level, ideally researchers have to consult communities, to enrol subjects into their research and to communicate findings in ways that are meaningful in the public domain.[11] At a more fundamental level, categories can only function as tools of research and policy if they gel with lay common sense, and this pushes them into a concern with categories that 'make sense' in the public domain (cf. Grundmann 2001; for the general argument, see Daston and Galison 2007). This explains the apparently contradictory trend of genetic researchers using self-categorization and official, nationally specific systems of racial and ethnic categories to make sense of biological processes.

The Contributions

As our discussion so far suggests, we are sympathetic to approaches that discuss new emerging forms of 'biosociality' and 'biological citizenship'. But although useful, these concepts can, if not carefully used, flatten out these differences in terms of the degree and form of regulation, the relationship between lay and expert knowledge, and, indeed, in the relative significance of different developments. As Margarete Lock has cautioned in her work on Alzheimer's disease (e.g., Lock 2008), the role of genetics in the organization of (new) socialities around disease and disease risk – the field in which the idea of biosocialities has been mostly employed – is sometimes over-estimated, leading unintentionally into the very trap of reductionism associated with the gene hype. In accordance with Gibbon and Novas (2008), Lock argues for a 'distributed bio-sociality' (2008: 65) that takes into consideration the wider 'political economy of genomic knowledge and technology' (Gibbon and Novas 2008, Introduction: 7).

We take up this challenge, which we think is also vital to an understanding of the impact of DNA (or rather the knowledge and expertise associated with it) beyond the health sector. With our detailed analysis of the circulation of DNA technologies between different contexts, we propose a methodological approach that reaches down to where biosocialities are made in the first place. Rather than assuming what the outcome of the entanglements between new genetics, new forms of subject formation and governmentality, and identity politics are, we suggest first looking into the trajectories of DNA technologies, their preconditions, modalities and consequences. We start from the assumption formulated in the principle of symmetry of translation theory (Bloor 1976) that any token – in our case DNA technology, or the 'gene' for that matter (cf. Oyama 2000: 118) – does not only and primarily circulate and spread due to an intrinsic energy or power (such as its truthfulness, utility, moral superiority and beauty). In order to travel, a token must rather be picked up by diverse actors and integrated into their repertoires and actions, and they do this for very different reasons that are only partly related to the token and its characteristics. During this process of translation neither the token, nor the actors, nor the receiving and the sending contexts and the boundaries between these remain the same (cf. Latour 1986). All of this is changing due to ongoing translations and new links that are created in interstitial spaces between entities that were previously separate.

The authors who are assembled in this volume all share a concern with the complexities underlying contemporary identity politics in the wake of the new genetics, yet they employ a variety of means to achieve this goal. This is partly due to their different disciplinary backgrounds (in anthropology, sociology, geography, the history of science, science and technology studies, and medical research) and partly due to their specific questions and the settings in which these are examined: from scientific practice (Smart et al.), through the field of forensics and the constitution of national subjects (Skinner, Vaisman) to new kinship practices via biomedical and bureaucratic technologies (Wade) and the growing sector of commercial ancestry testing (Nash, Palmié, Schramm and Sommer). Although varied in terms of background and topic, our authors combine a focus on biology and the politics of race, ethnicity and racism with analyses of the interplay of the local, national and global dynamics of practices of science, policy and identity. They do so in a variety of ways by looking at representations (in various media – from the internet to scientific journals and databases), performances (in different actors' terms) and discourses (within and between the spheres of popular culture, law, science and politics).

The volume starts off with a contribution by Andrew Smart, Richard Tutton, Paul Martin and George T.H. Ellison, who draw on evidence from a three-year project that has explored the use of 'race' and 'ethnicity' in genetic and biomedical science. Their chapter engages with conceptual debates about social constructivism and explores what biomedical scientists mean when using expressions such as 'social construct', 'social construction' or 'socially constructed' in discussions about race and ethnicity. While genetic researchers are often portrayed as seeking to displace social accounts of group difference with biological alternatives, as Smart et al. show, contemporary scientists on the contrary are often willing and able to work with the definitions of social policy makers and lay actors. The notion that race 'is a social construct' is a useful way for scientists to manage the entanglements between identities and DNA thrown up by developments in genetics. The chapter centres around a Special Issue, entitled *Genetics for the Human Race*, that appeared in the renowned journal *Nature Genetics* and focused on the use of racial and ethnic categories in biomedical research. Smart et al. argue that there are differing and potentially inconsistent understandings amongst researchers about what is meant by 'socially constructed' when they talk about 'race' and/or 'ethnicity'. The notion that 'race' is a social construction is part of a set of multiple and overlapping categorizations of human populations that seem likely to remain ambiguous, and subject to disagreement and blurring. As Smart et al. argue, while there thus remains room for fluidity, flexibility and novelty in the identity politics surrounding 'race' and genetics, this should not detract from the power or importance of the notion of 'race' in particular as it relates to historical and contemporary processes of racialization and racism.

Similar themes run through Chapter 2 where David Skinner locates analysis of the emerging biopolitics of race, genetics and identity within a wider account of the varied and changing use of official systems of racial and ethnic categorization. As such, he explores the multiple connections between the apparent biologization of racial and ethnic difference and the (often nation-specific) sociopolitical conditions under which racialization occurs. He also reminds us of the potential for surveillance, control and discrimination in the new genetic technologies. Skinner uses the case of forensic DNA databases (in particular, the British National Police DNA Database) to reveal a complex politics of knowledge centred on the construction and use of racialized data. In the British case a disproportionate number of young black men have DNA records stored on state databases. The ethnicity of each person included in the database is recorded alongside genetic data. The purpose of racializing each DNA record in this fashion is contested and ambiguous: is this a sinister precursor of 'ethnic profiling' or a means of monitoring the fairness of the system? As Skinner shows, discussion of the validity, reliability and legitimacy of ethnic categories and processes of categorization is endemic to the operation of the British forensic database. A continuing politics of categorization takes place in conditions that defy easy distinctions between the social and the biological or between (apparently plastic) self-identifications and (apparently fixed) official or scientific definitions of group difference. As Skinner argues, however, the continual consideration of category issues has often been a way of postponing discussion of the role of genetic science in an institutionally racist criminal justice system.

Peter Wade is also concerned with the changing dynamics of racial classification(s), in particular with regard to the notion of 'race-kinship-congruity'. In Chapter 3 he argues that kinship and race (and ethnicity and nationality) are linked through ideas about relatedness and the transmission of substances, including genetic material but also less concrete substances such as 'blood'. Discussing examples from Latin America and Europe, Wade examines how that link works and has changed over time. Based on Banton's ideas of 'race as lineage' and 'race as type', he outlines a basic race-kinship intersection in cognatic Western kinship systems, in which parents are expected to give birth to offspring who are recognizably linked to either/both of their parents; the criteria of recognizability include racialized appearance. Wade then explores the shift towards 'cultural racism' and argues that despite the apparent abandoning of genealogical and physical criteria for race, these still play a key role precisely through the link between race and kinship and the role of ideas about race in bridging Western concepts of nature and culture. The chapter looks at technologies of kinship – assisted conception and transnational adoption – to see if recent changes in ways of understanding kinship have altered the way race and kinship intersect. Wade argues that there seem to be ways in which these new modes of kinship reckoning simply serve as arenas in which existing ideas about race are not only reiterated but are also renaturalized, and in which existing ideas about race shape and constrain kinship connections. But there also seem to be ways in which existing ideas about race are challenged, destabilized and even denaturalized, and in which ideas about kinship are also reshaped.

Noa Vaisman's contribution (Chapter 4) is also concerned with the complexities of kinship, adoption and identification, yet not in a transnational framework but rather in one highly politicized national context. Among the many human rights violations committed by the military dictatorship in Argentina (1976–83) was the abduction of around 500 infants whose parents were 'the disappeared' – political opponents secretly killed by the regime. Separated from their biological parents, these children were assigned new identities and new state documents, and in most cases they were given away to be raised by the perpetrators of the crime and their accomplices. To this day the majority of these individuals, now in their early thirties, are unaware of their real genetic origins. As part of their struggle, a number of human rights organizations, principally among them the Grandmothers of the Plaza de Mayo, have been searching for these individuals, increasingly by means of genetic technologies of identification. The chapter traces both the historical circumstances that gave rise to the use of DNA in the search for the 'living disappeared' and the implications of its current use in shaping Argentine notions of identity. Vaisman shows how the DNA tests used in the identification of these individuals have raised questions about the complex relations between biological matter, social ties and identity.

In Chapter 5 Marianne Sommer takes us along the historical dimension of identity politics and its link to biology before and after DNA. Her chapter is mainly concerned with the application of a biologically founded and scientifically reconstructed history, and the ways in which geneticists of the twenty-first century are challenging the historian's position as provider of identity-forming origin narratives. Looking at iGENEA, a provider of genetic ancestry tracing services based in Switzerland, the chapter examines how commercial genetic ancestry tracing services provide new kinds of raw material through which to build personal, family and national histories. Sommer analyses the public discourses surrounding the company and explores the specificity of such an enterprise in Switzerland, and more generally in German-speaking Europe. As she shows, services such as iGENA raise significant questions: how is this history and genealogy on a genetic basis produced, sold and consumed? What needs does it satisfy/foster? And how does it differ from other kinds of historical reconstruction that occupy the same public-economic niche? Specifically, Sommer considers how in this case commercialized science deals with historically and culturally complex 'brands' such as *Heimat*, *Urvolk* and *Ursprungsland* ('homeland', 'aboriginal folk' and 'country of origin').

Obviously, there are connections and variations between the use and understanding of genetic ancestry testing in different contexts. A different case of ancestry testing is discussed by Catherine Nash in Chapter 6. Her analysis of 'Irish DNA' and the making of connections and distinctions in Y-chromosome surname studies brings the gendered meaning of genetic technologies to the foreground. Drawing on the online culture of genetic clan ancestry, Nash's chapter explores the ways in which ideas of shared origins and relatedness are being reconfigured through new genetic surname projects and the ways in which concepts of ethnicity and nationality figure in the complicated work of making new forms of meaning from test results. Though these projects may be informed by a desire to have a single ethnic affiliation genetically confirmed and a single place of origin genetically located, in practice they produce new genetic distinctions within these imaginative and virtual communities that challenge existing assumptions of relatedness, collective identity and belonging. But geneticizing Irish clan ancestry in this strand of global genealogy is not just a matter of diasporic ethnic identifications but of understandings of identity and difference in Ireland and Northern Ireland too. In the context of the long history of ethnic division and conflict in the north of Ireland, new genetic knowledge can both complicate and reconfirm understandings of an indigenous Gaelic population and of biological distinctions between native and settler groups. The chapter consequently considers the ways in which ideas of nationhood, ethnicity and relatedness are being reworked in this strand of genetic genealogy in relation to the politics of national and diasporic belonging.

In Chapter 7 Katharina Schramm further explores the diasporic and gendered dimension of ancestry testing, looking at its usage, representation and interpretation across the Black Atlantic (Gilroy 1993). She examines how this practice combines notions of symbolic heritage and biological inheritance in unique ways. Previously established racial and ethnic categories, such as 'black', 'African', 'Ghanaian' or 'Asante' that carry specific cultural and political meanings are thereby reconfigured and embedded in new networks of relatedness. Schramm explores this process with regard to other forms of (black) identity production, the politics of memory and the constitution of knowledge. She demonstrates how, through its combination of techniques of embodiment, purification and objectification, genetic ancestry testing constitutes a unique location where the changing dynamics of individual and collective categorizations can be fruitfully explored. Her analysis of the representational dynamics of ancestry testing is embedded in a discussion of three interrelated aspects: the impact of slavery on notions of identity and belonging in diasporic settings; the specifics of U.S. multiculturalism and the connected ethnicization of belonging; and, finally, the situation in African states, such as Ghana, which are at the receiving end of the genealogical quest.

Detailed case studies such as those by Schramm, Nash and Sommer raise general questions about the practice, appeal and longer term impact of genetic ancestry testing and its underpinning assumptions about identity and science. It is therefore appropriate that the volume ends with an ambitious and provocative bid to reframe these questions. Stephan Palmié discusses the practice of ancestry testing, or personal genomic histories (PGHs), and the science on which it is based through the lens of the anthropological concept of 'cults of affliction'. He argues that the marketing strategies of PGH providers and their resonance in public discourse throw intriguing light on the reproduction of ideologies that, in naturalizing the experience of racism, displace its (structural) sources downwards into the realm of the biotic in a manner revealingly reminiscent of the manner in which classic drums of affliction displace them upwards towards the divine. Beyond that, however, the chapter aims to demonstrate how the abductive logic (in C.S. Peirce's sense) of both Afro-Cuban divination and molecular biological identity arbitration works to constitute forms of sociality. The chapter suggests, in the spirit of a Latourean 'symmetrical anthropology', that if PGH products really serve the purposes advertised by their providers and the media, then we might be facing a troubling situation: one where the acquisition and inhabitation of genomically 'rooted' identities would ultimately represent little else than a practical response to the mobilization of enchanted technologies in the service of contextually rational projects of identity management – however much these contribute to the reproduction of the social reality of 'race'.

Final Thoughts

Palmié's chapter has the great merit of moving us on from repeatedly asking whether genetic accounts of racial, ethnic or national similarity are intrinsically true or false. Instead, it leads us to consider how and why such accounts might come or not come to be usable and useful. An appreciation of what we have called 'travelling ideas' facilitates this agenda shift. Taken as a whole, the chapters in this book demonstrate the importance of drilling down to the complexities of and connections between various times, places and institutional contexts in which identity and DNA come together. They reveal a contemporary biopolitics that is haunted by visions of a past and future of scientific racism, and in which science and politics make a multiplicity of criss-crossing connections. Here it makes little sense to speak of a single key actor and to deduce the dynamics of the arena from there – instead, we need to consider the distributed agency (Garud and Karnøe 2003) in DNA-based knowledge and technologies.

Together the chapters highlight global, regional and local factors but, for all the universalistic claims of genetics, a recurring theme is the continued significance of the nation state as imagined community, policy apparatus and a key arena where political and scientific controversies are played out.

A model of travelling ideas also allows us to understand and manage what can often seem to be a frustrating lack of clarity about the message of DNA and, indeed, the meaning of core conceptions of 'race' and 'ethnicity.' Together the chapters in this book reveal much about the ways in which DNA technologies function as 'immutable mobiles' that maintain aspects of their ontological qualities throughout their journey, yet at the same time acquire new and partly contradictory meanings and functions in different settings. A comparable analysis can also be applied to race and ethnicity – concepts that are strikingly resilient and resonant yet open-ended enough for interplay between widely distributed actors and actants operating with different and partly incoherent interests, intentions, reality assumptions, and epistemologies.

We believe that a strength of this collection is its range of case studies – there is much to be learnt by discussing DNA and racialized identity across the different spheres of medicine, forensics, genealogy, etc. Our volume has a preponderance of chapters that deal with genetic ancestry testing, a feature which is, we would argue, a timely counterbalance to the ways in which this aspect of genetics has often been trivialized or dismissed elsewhere. Genetic ancestry testing is a sphere where the active performance of identity claims is most foregrounded, but combining discussion of ancestry testing in this collection with a range of different examples allows us to see elements of the same preoccupation with the active expression of identity in other areas as well. It also allows us to see the interconnection of individualized and group identities, and of identification by self and identification by others that is present across racialized genetics as whole. The active assertion, discovery or choice of identity by laypeople is frequently presented as a check or balance to the imposition of racial and ethnic labels from above, but contemporary race experts also operate on, with and through the idiom and practice of 'self-identification'.

We acknowledge that this is a collection whose interdisciplinarity only extends as far as the borders of the social sciences. Returning to the theme of our opening paragraphs, however, the time now seems right to replace the language of social constructivism with new ways of talking about race and science. We cannot take the debate 'Is race biological or social?' at face value, but instead should consider how different moves between the social and the biological are utilized by various actors (see Jasanoff 2005 and the overarching argument in Rheinberger 2007). We are struck by the ways in which our emphasis on travelling ideas reverberates with the aforementioned strand in current biology that objects to the gene determinism that dominated the 'century of the gene' and focuses on developmental systems instead, placing environments, organisms, cells, genes, etc., in a processual framework of mutual constitutedness and distributed agency (Oyama 2000; see also Oyama, Griffith and Gray 2001). This collection attests to a similar conceptual shift in the social sciences. We believe that it is from here that a new interdisciplinarity in the study of life in all its expressions and facets may evolve.

Notes

1. The editors would like to thank Stephan Palmié, Peter Wade and the two anonymous reviewers of Berghahn Books for their helpful comments on earlier versions of this introduction.
2. One also needs to be aware that epigenetics might also lead to a pure affirmation of 'the biological' by locating all processuality within the body (or the cell) while ignoring the social dimensions of interaction between people, people and the environment, etc. This point was made by Geoffrey C. Bowker during a workshop on 'Genealogical Practices', which took place at the Institute for European Ethnology, Humboldt-University Berlin, in December 2007. Katharina Schramm would like to thank Michi Knecht for inviting her to participate in this workshop.
3. This was already stressed by Richard Lewontin as early as 1972 (Lewontin 1972).
4. David Skinner would like to thank Sahra Gibbon and colleagues for the invitation to participate in the 'Genetic Admixture and Identity in Latin America' workshop held at UCL, London, 20–21 February 2009. The contributions to this workshop inform this discussion.
5. The underlying 'referential ambiguity' has already been noted by Marvin Harris in his analysis of racial classification in Brazil (see, for example, Harris 1970).
6. Their argumentation was built around an attack of Michael Hanchard's (1994) analysis of the Brazilian *Movimento Negro* and his advocacy for Black political action. Their polemics have been criticized for their superfluous dichtomization between national settings – a negatively portrayed U.S. racialism on the one hand and a positively connoted Brazilian (and implicitly French) politics of race relations on the other, as well as their ignoring of transnational dimensions of racial oppression (cf. French 2000; Hanchard 2003).
7. Such a strict national (or regional) focus also ignores the importance of diasporic movements and the ideas travelling through and around them in a globalized space – cf. Schramm 2008; Thomas and Clarke 2006.
8. An early inspiration for this strand of thought has been Alonso's concept of 'substantialization' (Alonso 1994), which does not yet take into account the impact of the new genetics, but rather focuses on blood.
9. Interestingly, in apartheid South Africa, which was a society obsessed with race and classification (cf. Bowker and Star 1999: 195–225), courts did not accept genetic 'evidence' as a basis for their decisions regarding individual racial reclassifications; personal communication between Katharina Schramm and Trefor Jenkins, 19 July 2010.
10. See Roberts et al. (2004). Thanks to Anja Wiegner for drawing our attention to the Maori case.
11. Compare the controversial views on the level of this public involvement in the case of DeCODE Genetics and the Icelandic genetic database, as expressed in Pálsson and Rabinow (1999) versus Fortun (2008).

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1

‘Race’ as a Social Construction in Genetics

Andrew Smart, Richard Tutton, Paul Martin and George T.H. Ellison

There is an incongruity at the heart of postgenomic biomedical science. The sequencing of the human genome promised the elimination of racial and ethnic categories from biomedical science (Schwartz 2001). However, despite this, we have witnessed a resurgent interest in ‘race’, including challenges to the longstanding orthodoxy (following Lewontin 1972) that classifications of human populations by ‘race’ are not supported by genetic data (Andreasen 2000; Risch et al. 2002; Rosenberg et al. 2002; Edwards 2003). While some geneticists have consigned the concept of ‘race’ to the scrapheap, others appear to be reviving it. This work is occurring within a broader social and scientific landscape, one in which differences between human populations are invested (or reinvested) with significance. This attention to groups, their differences and similarities and their boundaries feeds off of, and contributes to, our ideas about identities and belonging. It has the potential to create, reinforce and/or aggravate social and ethical issues surrounding, for example, matters of self-identification, group representation, equality, stigmatization, discrimination and resource distribution. The particular discussions about ‘race’ in genetics which we consider in this chapter will be shown to reinvigorate debates about what ‘race’ really is and, by extension, claims about the status of collective or individual identities that draw upon (and reproduce) ideas relating to racial division.

A major stimulus for this kind of work is the potential development of ‘targeted’ diagnostic and therapeutic interventions. Such ‘targeting’ is predicated on the search for significant biological differences within and between ‘populations’, which has led to the creation of large-scale scientific projects that map genetic variation. An often-cited example is the International Human Haplotype Map (HapMap) project, which aims to improve health by charting variations in DNA sequences between population groups labelled as ‘Yoruba’, ‘Han Chinese’, ‘Japanese’ and ‘Americans of northern and western European descent’ (International HapMap Consortium 2003). It should be noted, however, that beyond such high-profile examples, genetics researchers routinely classify samples with population labels (Ellison and Jones 2002; Fullwiley 2007; Smart et al. 2008b; Hunt and Megyesi 2008). Furthermore, as the HapMap example illustrates, we are not always confronted by the use of overtly 'racial' characteristics to label population groupings, but also other classifications that contribute to discourses of 'race' such as geography, nationality, ethnicity and/or ancestry. Indeed, genetics research often adopts classification schemes from state bureaucracies (Epstein 2007; Fullwiley 2007; Ellison et al. 2007; Smart et al. 2008b). The use of such classifications sometimes relates to the research design, although (in some jurisdictions) the state requires or encourages researchers to classify participants for reasons of monitoring policies that encourage equality and 'inclusivity' (Epstein 2007; Smart et al. 2008a).

So, what is worrisome about these routine practices in genetic research which aim to promote 'inclusive' research and may lead to potentially helpful population-specific health interventions? There is a well-documented quandary in healthcare policy and practice: categorization by 'race' and ethnicity can be simultaneously useful for addressing health inequalities and yet harmful because it reinforces the very notions that may have initially contributed to these inequalities (Witzig 1996; Nazroo 1998; Anand 1999; Bradby 2003). Furthermore, there are well-documented difficulties in operationalization and measurement (Aspinall 1997, 2001). These quandaries have resurfaced in recent debates about genetics, 'race' and medicine. Some questions have been asked about the validity, reliability and utility of socially-defined population categories as well as how clinical practice and public health advice will deal with group differences. For example, a heated debate exists around so-called 'racialized prescribing', its legitimacy, utility and social costs and benefits (Satel 2002; Burchard et al. 2003; Phiminster 2003; Cooper et al. 2003; Kahn 2004; Ellison 2006). At the centre of such debates – at least for sociologists – is the question of whether genetic research will revive racial science and scientific racism (Martin et al. 2007; Rose 2007). Given that this is *genetic* research, particular concern has centred on the potential for reinvigorating the notion that 'races' are naturally occurring, biologically meaningful entities (Gannett 2004; Duster 2005).

There has been a relatively stable cross-disciplinary consensus on the ontology of 'race', described thus by Gannett: 'The apparent consensus view among academics from diverse disciplines – the humanities, the social sciences, and the biological sciences – is that biological races do not exist, at least in humans. Biological race is a socially-constructed category' (2004: 323). Nevertheless, as noted above, there have been challenges to this consensus, such that claims about the biological reality of 'race' have been resurrected (e.g., Sarich and Miele 2004). Work in genetics thus appears to threaten the common refrain that 'race' is a social construction. John Hartigan Jr. (2008) has produced the most developed account of this issue. While – as we might expect – he rebuffs the claims made about the biological basis of racial categories, he comes to a somewhat critical conclusion by arguing that:

> Current assertions that race is socially constructed do important work keeping [the historical and contemporary] misuses of race in view, while

> also challenging the evidentiary ground for making claims about linkages between race and genetics. The problem with this assertion, though, is that since it typically makes its starting point the discrediting of biological claims … 'social construction' generally offers meagre guidance in comprehending the cultural dynamics at work in racial matters. (2008: 185)

To repel claims about the biological reality of 'race' by claiming instead that it is a social construction is, he argues, becoming less effective (see also Hartigan 2006).

In this chapter, we look in more detail at the appearance of the notion that 'race' is a social construction in the field of genetics. Contributors to an influential genetics journal, *Nature Genetics*, used the expressions 'socially defined construct', 'social construct' and 'socially constructed' in a Special Issue entitled *Genetics for the Human Race* (further details of which are given below). The appearance of this vocabulary initiated a debate within our research group about whether or not the use of such phrases was to be expected, what the authors meant when they used these terms and why they were using them. In order to start answering these questions, we undertook a detailed analysis of the usage of constructionist terms in the Special Issue. However, this analysis raised new questions in our minds about what it means more broadly for anyone to claim that anything is a social construction. We therefore begin by outlining three aspects of social construction that appeared to be the most relevant to our interests; these will comprise our analytical framework during the subsequent discussion.

An Analytical Framework: What Does it Mean to Say Something is a Social Construction?

There is an extensive literature on social construction spanning different disciplines, and what follows here is certainly not a review of this broad and complex idea. To gain an overview, we have relied on the work of philosopher Ian Hacking (1999). We recognize that Hacking is not the final arbiter on ideas about social construction and that some of the arguments reported below are refuted by his critics. Nevertheless, his philosophical groundwork clarifies many of the key characteristics of social constructionism.

Hacking begins by explaining how claims that something is a social construction involve challenging a notion that something is determined by 'the nature of things', thereby emphasizing that it is not inevitable but that it 'was brought into existence or shaped by social events, sources, history' (1999: 6–7). Saying that something is a social construction means uncovering contingency where none was previously thought to have existed by attending to specific social, cultural and historical contexts. Hacking then proceeds to draw attention to notable characteristics and points of difference that exist in claims that something is a social construction, three of which proved particularly useful for our analysis.

Objects, Ideas and their Interactions

Hacking (1999) explains that the sorts of things that can (and have been) described as socially constructed are extraordinarily wide-ranging. He notes that claims to social construction can be ambiguous and that ‘they have in mind several interacting items’ (1999: 33):

> It is plain in the case of gender. What is being constructed? The idea of gendered human beings (an idea), and gendered human beings themselves (people); language; institutions; bodies. Above all, ‘the experiences of being female.’ (1999: 28)

His path through these ambiguities draws an analytical distinction between claims that have been attached to different things. Most importantly for our current purpose is to note his attempted division between ‘ideas’ and ‘objects’, and his argument that it is different to claim that an idea of something is a social construction than to claim that an object that is ‘in the world’ is a social construction (1999: 21). Nevertheless, this is a dichotomy which he acknowledges is ‘fuzzy at the edges’ (1999: 21), because ideas such as classifications or groupings have ‘extensions – classes, sets, and groups … [which] are collections in the world, and so count as “objects”’ (1999: 22).

Hacking goes on to argue that there can be interactions between these ideas and the objects to which they refer (e.g., between a classification [idea] and the people subjected to that classification [object]). For example: ‘Ways of classifying human beings interact with the human beings who are classified … People think of themselves as a kind, perhaps, reject the classification … Moreover, classifications do not exist only in the empty space of language but in institutions, practices, material interactions with things and other people’ (1999: 31). Some classifications are thus ‘interactive’, that is, they involve ‘conscious interactions between kind and person’ (1999: 32). In such cases, he says, there is potential for ‘looping effects’ whereby awareness of the classification ‘can have consequences for the very group, for the kind of people that is invoked’ (1999: 34).

Scope and Commitment

Hacking (1999) argues that accepting one thing as a social construction does not necessitate thinking that everything else is. Thus, claims that a specific thing is a social construction can be regarded as ‘local’ while, in contrast, ‘universal’ constructionism would be the claim ‘that every object whatsoever’ is socially constructed (1999: 24). However, Hacking questions whether such an extreme universal position has ever really been advocated. He argues that the primary use of labelling something as a social construction is to raise consciousness about social, cultural and historical contingency in ways that undercut assumptions about inevitability. Consequently, he says, such claims are often (but not always or necessarily) seen to offer a potential for liberation and are accompanied by arguments about value judgments and the need for change. He proceeds to outline six ‘grades of commitment’ to social constructionism – these are labelled as historical, ironic, reformist, unmasking, rebellious and revolutionary –

which range from merely having a particular attitude to scholarly activity through to using it as the basis for a form of political activism (1999: 19).

'Social' versus ...

Some claims about social construction are framed in oppositional terms. Certain things are argued to be either social constructions or 'real', 'biological' or 'natural'. Much of the furore surrounding social construction can be traced back to the suggestion, or implication, that the things that natural scientists studied, how they studied them and the outcomes of their studies were not inevitable. Hacking explains that the 'science wars' debates were 'heavily loaded with the words [objective, ideological, factual and real]' (1999: 23). For him, an opposition between things that are real and things that are social constructs is not always necessary; certain things can be both (1999: 29, 101). He also argues that the under certain circumstances things (such as certain mental illnesses) can be both social constructions and biological or natural 'kinds' (1999: 119–24).

Our Analytical Frame and the Social Construction of 'Race'

Hacking (1999: 16) only briefly examines 'race' as a social construction to illustrate how the function of such claims is to undercut ideas that 'one's race is a part of one's "essence"'. He returns to the subject of 'race' elsewhere, when he argues for the continuing relevance of 'the category of race' because 'races in some contexts are not only statistically significant but also statistically useful' (2005: 108) and when he describes the quandaries that arise from contemporary genetic research (2006). However, our purpose here is not to review Hacking's views on 'race', but rather to highlight aspects of his general discussion of social construction which we found useful for analysing the Special Issue. To recap, these were: differences in respect to the focus of claims, including the interactions between 'ideas' and 'objects'; differences in respect to the scope of, and commitment to, claims; and the (oppositional) form of some claims. For now, three initial thoughts can be noted about how these general ideas concerning social construction relate to 'race' in the context of genetic research.

First, to claim that 'race' is a social construction can hide great complexity and diversity (in focus, scope, commitment, etc.). This implies not just potential differences in usage between people, or within and across disciplines and subdisciplines, but also that different meanings can be implied or read into what – on the surface – seems like a simple statement. Secondly, ideas about 'interactive classifications', 'looping effects' and fuzzy boundaries between objects and ideas are all pertinent for thinking about 'race' as a classification of humankind. These underline that when we talk about 'races' in humanity, we engage in debates about identity politics, which frequently (but not exclusively) invoke a long and sometimes brutal history of discrimination and stigmatization. Thirdly, claims that something is a social construction rather than 'real', 'biological' or 'natural' are particularly relevant to debates about 'race', which often follow this pattern. We will return to these issues in our discussion.

Social Construction in the Special Issue of *Nature Genetics*

Our analysis of the appearance of the notion that 'race' is a social construction in 'genetics' centres on the November 2004 Special Issue of *Nature Genetics*, titled *Genetics for the Human Race*.[1] We acknowledge from the outset that this is a somewhat narrow 'sample' of perspectives from 'genetics' and, had our approach been different, we may have found additional and alternative views. Nonetheless, our aim is to be exploratory and discursive rather than strictly empirical. In this section we provide further details about the Special Issue and describe the range of positions that were evident in respect to the notion that 'race' is a social construction. We make some analytical comments as we reveal the position of each set of authors, but a more comparative analysis will follow in the section of this chapter titled Discussion.

Background: The Special Issue

Our analysis of the Special Issue *Genetics for the Human Race* reflects its importance as a landmark publication in debates about 'race' and genetics, a significance also recognized by other discussions of this field (Hacking 2005, 2006; Rose 2007; Hartigan 2008). It garners such attention because *Nature Genetics* is a high-status academic journal and the contributors to the Special Issue are well-recognized figures in the debate. The discussions that are published reveal not only the ongoing quandaries about 'race' and genetics but also the importance of the topic for leading scientific figures (including Francis Collins, the Director of the United States National Institute of Health) and the field of genetics more generally. Nevertheless, the Special Issue should be recognized as existing within a history of interest about population classifications in *Nature Genetics*. It pursued a number of themes raised in previous *Nature Genetics* editorials (2000, 2001 and 2004a), such as: how 'race' and ethnicity should be defined, classified and operationalized; the value of alternative concepts (like ancestry); and the importance of public engagement on this topic.

The Special Issue originated from a workshop, 'Human Genome Variation and "Race"', held on 15 May 2003 at the National Human Genome Center (NHGC), Howard University, Washington DC. Howard University has historical links to Black politics in the U.S.A., something which is reflected in the aims of the Centre. The NHGC is 'dedicated to the engagement of African Americans and other people of African ancestry into the mainstream of human genome research', which has led to criticism that 'the center perpetuates race-based science and medicine' (Royal and Dunston 2004: S6). The workshop brought together contemporary research on the relationship between 'race' and genetic variation, and a range of views on the social and ethical implications of this research. It focused on the following questions: 'What does the current body of scientific information say about the connections among race, ethnicity, genetics and health? What remains unknown? What additional research is needed? How can this information be applied to benefit human health? How might this information be applied in non-medical settings? How can we adopt policies that will achieve beneficial societal outcomes?' (Patrinos 2004: S1) The subsequent Special Issue comprised twelve papers: a sponsor's foreword, written by the Director of Biological and Environmental Research at the United States Department of

Energy, an editorial, three 'commentaries' and seven 'perspectives'. In the editorial it is stated that 'it is time to engage everyone in this discussion' (Nature Genetics Editorial 2004b: S3) and the interdisciplinarity of genomics as a field of enquiry was somewhat evident in the Special Issue, which included contributions from anthropologists, bioethicists and geneticists.

Elsewhere, we have argued that two broad strategies emerged from contributions to the Special Issue in respect to 'enabling' continuing scientific work in this area. These were to examine links between 'race' and genetic variation while awaiting the development of alternative ways to subdivide populations that are more relevant to genetics, and to investigate genetic variance in populations classified using alternative categories and labels, thereby avoiding the terminology of 'race' (Smart et al. 2006).

Social Construction in the Special Issue and our Initial Thinking

The term 'construct' (or the derivatives: 'constructs', 'constructed' or 'construction') is used in relation to 'race' on eleven occasions, in four articles out of a possible twelve. As noted earlier, the appearance of these phrases initiated a debate within our research group. One member argued that it was surprising that any articles published in such a prestigious natural science journal would have engaged at all with a notion derived from the social sciences. Indeed, a keyword search reveals that *Nature Genetics* has only ever published three other items in which the term 'social construction' appears (one of which was an aforementioned editorial). Another suggested, however, that he would have expected that more of the articles in a Special Issue adopting an explicitly reflective stance on the biological basis of 'race' would have engaged with the notion of social construction. Surprising or not, the appearance of these terms appeared to signal that the politics of 'race' and social science debates had infiltrated natural science writing.

Nevertheless, some limitations to the impact of the notion that 'race' is a social construction should be noted at the outset. The authorships in three of the four papers were – in some respects – overlapping. Charles Rotimi, who authored a 'perspective', and Charmaine Royal and Georgia Dunston, who coauthored a 'commentary', were all also coauthors on the 'perspective' by Keita et al. (2004). These authors are 'linked' by their affiliation to the NHGC. This indicates that the notion was less widespread than would have been the case if the papers had been authored discretely. Furthermore, three of the four articles using the phrases, while only two of the eight articles that did not, were coauthored by anthropologists and/or bioethicists. This perhaps signals the influence of interdisciplinarity on the spread of the idea that 'race' is a social construction, but again this raises a question mark over our initial thinking that it is being adopted by the field of genetics.

Framing and Usage of the Terms

To begin a more detailed analysis of what the authors meant when they used constructionist terms, we first introduce the ways in which the notion that 'race' is a social construction was framed and used by the four sets of authors.

In the first 'commentary' paper, Royal and Dunston (2004) set out an overview of the Special Issue and its context, and in doing so make a number of statements about 'race' as a construct. They argue that knowledge about 'human genome variation is forcing a paradigm shift in thinking about the construct of "race"' leading to the questioning of 'paradigms of human identity based on "races" as biological constructs' (2004: S5). They align themselves to the position of their research centre, the NHGC, which they describe thus: 'Traditional "racial" designations in humans are not bounded, discrete categories but are fluid, socially defined constructs that have some poorly understood correlations with various biological elements and health outcomes' (2004: S5–6). Royal and Dunston's opening overview to the Special Issue thus highlights that the notion of '"races" as biological constructs' feeds into the ways in which people form and/or express their sense of identity. They also adopt a position which focuses on 'traditional "racial" designations' – i.e., not 'race' per se, but on potentially anachronistic 'racial' labels and descriptions.

Keita et al. (2004), the first of three 'perspective' papers which use the notion of social construction, is described as 'putting forward the NHGC's position on the meaning and application of the term "race"' (Royal and Dunston 2004: S6). This position is that 'race' is a 'legitimate taxonomic concept that works for chimpanzees but does not apply to humans (at this time)' (Keita et al. 2004: S19). They recommend that alternative population labels be used and argue that this would improve research designs and public policy. Nevertheless, Keita et al. (2004: S18) assert that their '"no biological race" position does not exclude the idea that racism is a problem that needs to be addressed'. Of the four papers that use the notion of social construction, Keita et al. (2004) gives the most (and the most explicit) consideration to what it might mean. We will consider their ideas in more detail below, but at this point it is sufficient to note that they begin their paper thus: '[t]he term "race" engenders much discussion, with little agreement between those who claim that "races" are real (meaning natural) biological entities and those who maintain that they are socially constructed' (2004: S17). From this we can note initially that for Keita et al. (2004), 'races' are 'entities' rather than constructs (perhaps implying that they are things that exist rather than things that are simply ideas). Furthermore, they contrast socially constructed entities with 'biological' ones – the latter being seen as 'real (meaning natural)'. As we will discuss later, this problematically implies that the former are unreal or unnatural.

Mountain and Risch (2004) offer a 'perspective' paper which argues that 'racial' categories remain useful to biomedical research. Like Keita et al. (2004), they use disagreements about the status of 'race' as a construction in the opening context of their paper. The authors discuss the revival of debates about the 'biological or genetic basis of "race" or "racial" differences' by claiming that '[t]he controversy stems, at least in part, from the possibility that attitudes are influenced by whether people believe "race" is a biological or social construct' (2004: S48). For Mountain and Risch, whether 'race' is viewed as a 'biological or social construct' is a matter of belief, and it is this conceptual aspect that they claim plays a key role in determining people's attitudes and practices. While this is the only appearance of construction in the paper, Mountain and Risch arguably delve deeper into the notion than the other papers described here when they attempt to define a social category or group. We will consider this attempt in more detail below.

In his paper, Charles Rotimi (2004) describes the challenges surrounding the design of the HapMap project to illustrate the complexities and ambiguities associated with the use of group labels in genomic research. Rotimi (2004: S44) recognizes the possibility that data from the HapMap could become embroiled in 'emotional and volatile issues surrounding group identity'. He introduces social construction when quoting Morris Foster's argument that concerns about the HapMap form part of wider discussions about 'the implications of using socially constructed identities in genetic research'. He later goes on to reveal that scientists using HapMap data 'are advised to present their data in ways that avoid … attaching inappropriate levels of biological importance to largely social constructs such as race' (2004: S44). For Rotimi, 'race' is a construct, but one which is 'largely social' and in danger of being invested with 'inappropriate levels of biological importance'. In his portrayal, 'race' manifests as a blend of social and biological criteria rather than one or the other – although this apparent compromise leaves a number of questions unanswered about the relative contribution of social and biological components, and their functional/causal interrelationships, which we shall return to in the Discussion section of this chapter.

This brief introduction to the four papers highlights a common framework of terminology, including notions of social construction, the 'biological' and the 'social'. There is nevertheless already evidence of differences in how these authors describe the notion that 'race' is a social construction. We will now undertake a closer examination to highlight some subtle variations in focus and conceptualization.

Three Subtle Variations in Meaning and their Implications

Using further extracts from the Special Issue, we can reveal that differences exist between authors in terms of what social construction means to them and in terms of what it is about 'race' that is socially constructed. These variations in the meaning of the notion that 'race' is a social construction are shown to have implications in terms of their conceptual or methodological approach.

Socially Constructed 'Race' as the Product of Social Negotiation

One meaning of the notion that 'race' is a social construction is that the membership of a 'race' category or group is the result of social decisions. This position is argued by Mountain and Risch (2004) in their attempt to provide a conceptual grounding for the 'social' character of groups and categories. They argue: 'we define a social category or group as one determined by social factors; an individual is associated with such a category (or categories) based on a set of socially negotiated criteria. Given this definition, "race" and "ethnicity" are social categories, even when some inclusion criteria may be biological' (2004: S48).

So, a group or category is social if 'a set of socially negotiated criteria' is used to make a decision about membership, even when some of the criteria involved in these decisions are biological. For Mountain and Risch (2004), the key to determining whether a group or category is a social construct lies in whether there has been some social negotiation of the criteria that are used to determine whether or not people are part of the group or category. Thus, they argue, 'racial' and 'ethnic' groups and categories are social constructs because social negotiations have been required to determine the criteria that are used to judge who is associated with which groups and categories.

We will analyse this meaning of social construction alongside the two others that follow in the section of this chapter titled Discussion, but in the meantime it can be noted that the very processes of creating groups or categories, and negotiating criteria for inclusion or exclusion, is a human activity (even when this occurs under the auspices of 'science'). If this argument is applied to Mountain and Risch's (2004) definition, it becomes hard to think of any group or category that is not social.

Socially Constructed 'Race' as the Societal (Mis)Adoption of a Scientific Concept

A second meaning of the notion that 'race' is a social construction is apparent in the analytic work of Keita et al. (2004), as they attempt to disentangle 'correct' and 'incorrect' usages of the word 'race'. To locate their consideration of social construction within the broad sweep of political history and the adoption of scientific 'racial' classification schemes into social institutions, policies and practices, they argue that:

> some of the 'racial' taxa of earlier European science used by law and politics were converted into social identities. For example, the self-defined identities of enslaved Africans were replaced with the singular 'Negro' or 'black', and Europeans became 'Caucasian', thus creating identities based on physical traits rather than on history and cultural tradition. Another example of social construction is seen in the laws of various countries that assigned 'race' (actually social group or position) based on the proportion of particular ancestries held by an individual. The entities resulting from these political machinations have nothing to do with the substructuring of the species by evolutionary mechanisms. (2004: S18)

According to this characterization, socially constructed 'race' can be traced back to artefacts such as legal and political classification schemes and the political and social processes by which the categories and labels within those schemes became adopted by people as group identities. Such an argument is a common constructionist position on 'race'. What is notable, however, is their attempt to wholly dissociate these 'political machinations' from scientific definitions and interests (an issue to which we will return in the section of this chapter titled Discussion).

This dissociation is accompanied by the designation of some uses of the term 'race' as incorrect. They conclude that '"[r]ace" denotes socially constructed units as a function of the incorrect usage of the term' and argue that '"Race"' is "socially constructed" when the word is incorrectly used as the covering term for social or demographic groups. Broadly designated groups, such as "Hispanic" or "European American" do not meet the classical or phylogenetic criteria for subspecies or the criterion for a breeding population' (2004: S18).

Thus, for Keita et al., the term 'race' is either used correctly according to its scientific definition (as a 'natural' biological entity/category resulting from the 'substructuring of the species by evolutionary mechanisms') or it is misused in other areas of social life and is, in the process, socially constructed. Furthermore, it is 'social or demographic groups' or 'positions' that are 'socially constructed units', while 'race' only becomes socially constructed when it is (in their view) misused to define these 'groups', 'positions' or 'units'.

Again, we will analyse this position further in the Discussion section of this chapter, but in the meantime it is worth noting that this is a standpoint which (like the previous example from Mountain and Risch) appears to 'bracket off' the social actions and interactions that constitute scientific activity.

Socially Constructed 'Race' as a Critique of Scientific Categorization

A third meaning for the notion that 'race' is a social construction was its use as a way of critiquing the ostensibly 'scientific' categories used to describe and understand 'races' in humanity. This usage was apparent in Royal and Dunston's (2004) 'commentary' when they shift the focus of the construction claim to 'traditional "racial" designations'. Their reference to designations draws attention away from 'race' itself and towards the names, labels and descriptions associated with 'racial' groups. Furthermore, their use of the term 'traditional' locates these designations firmly as the products of human history and past classification processes. It is a little unclear from the paper itself, but we could speculate that Royal and Dunston (2004) call these designations 'socially defined constructs' because either they were (at least in part) defined using 'social' criteria and/or they were (at least in part) developed as a result of human actions and interactions.

Crucially, Royal and Dunston (2004) emphasize that 'racial' designations are 'fluid, socially defined constructs' as opposed to 'discrete categories'. Their adoption of this oppositional framing (fluid versus discrete) alludes to the problematic use of social entities or social processes in the production of what have sometimes been (and in some instances continue to be) treated as 'objective' and 'natural' scientific categories. Indeed, Royal and Dunston (2004: S5) call for people, including natural scientists, to be wary of and not be misled by such classifications when they note that genomics raises 'questions about the validity of inferences made about "race" in the biomedical and scientific literature'.

A Consensus on 'Race'?

Before reflecting on the differences in the usage of the notion that 'race' is a social construction, it is important to review the broader position that these four sets of authors adopted towards 'race' as a concept for understanding human health. All of the papers we considered from the Special Issue adopted a critical stance towards its validity and reliability as a proxy for health-related research. Indeed, as Royal and

Dunston conclude, in the Special Issue as a whole, 'there seems to a consensus that "race", whether imposed or self-identified, is a weak surrogate for various genetic and non-genetic factors in correlations with health status' (2004: S7). For example, from the papers we have been considering, Mountain and Risch (2004: S52) report on the limitations of 'racial' and 'ethnic' categories as 'proxies for a wide range of factors, potentially genetic and nongenetic', and we have just noted Royal and Dunston's (2004) own reservations about the validity of inferences made about 'race'.

However, the thorny question of whether or not 'racial' classifications should continue to be used remains contested. Rotimi (2004: S44) argues that it is time to move beyond 'poorly defined social proxies of genetic relatedness like "race"' and, as we have noted, Keita et al. (2004) argue for alternative population labels. In contrast, Mountain and Risch (2004) argue for the ongoing utility of 'racial' and 'ethnic' categories in epidemiology and clinical practice. Nevertheless, they recognize their 'potential for furthering racism' and assert that their continuing use is a temporary measure which is justified because of health disparities (2004: S52).

In this section we have provided a largely descriptive account about the positions of the various sets of authors. We will now explore further the important analytical issues to which we have alluded.

Discussion: Variations in Meaning and Interpretation

Earlier in the chapter we drew attention to three aspects of claims about social construction: differences in respect to the focus of claims, including the interactions between 'ideas' and 'objects'; the scope of, and commitment to, claims; and the oppositional form of some claims. We will now return to these three themes and will use them as a broad framework for exploring what the authors in the Special Issue meant when they invoked the notion that 'race' is a social construction, and why they were using this. In doing this we will also consider implications for issues surrounding social identity. In each subsection we will compare and contrast the various contributions to the Special Issue and consider other academic work in the field.

Objects, Ideas and their Interaction

When a claim to social construction is made, Hacking (1999) asks 'what' precisely is it that someone is claiming to be socially constructed? In the Special Issue there was extensive variation in the 'what' that the authors claimed to be socially constructed: an object or idea called 'race' that was thought to be socially and/or biologically constituted; 'race' as it is manifested by the designations used to classify and categorize these objects or ideas; 'race' as a scientific concept that was sullied by sociopolitical misuse; the physical manifestations associated with the idea of 'race'; or the social institutions, processes, relations, actions, experiences or meanings that might be 'ordered' by the idea of 'race'. There were specific attempts to focus attention on different aspects of 'race', for example, Royal and Dunston's (2004) attention to the idea of 'racial designations' or Keita et al.'s (2004) attempt to disentangle legitimate and illegitimate uses of the concept. In contrast, Mountain and Risch's (2004) attempted conceptualization of 'a social category or group' does not discern between objects and ideas. In our attempt to discern what the authors meant when claiming that 'race' is a social construction, part of the answer is that the 'race' to which they were referring was not a consistent or 'fixed' thing.

There is only limited evidence in the Special Issue of the authors attending to the interaction between 'race' classifications and the people who have been classified. There is some attention to historical political contexts (Keita et al. 2004), including the notion of 'traditional "racial" designations' being anachronistic (Royal and Dunston 2004), and the issue of continuing health disparities does appear in every article. Of course, the interaction between 'racial' classifications and people is particularly significant as it is the basis on which ideologies of racism were founded and flourished. It is thus notable that while two of the papers express concerns about racism (Keita et al. 2004; Mountain and Risch 2004), the particular ways in which genetic research using 'racial' categories might contribute to racism is not meaningfully discussed.

If we turn to the implications for individual and collective identity of using 'race' in genetics research, it is the 'looping effects' (Hacking 1999) that are a particular area of concern. As we noted in the introduction, fears about genetics reinvesting 'race' with biological meaning have been prominent in the debate (Gannett 2004; Duster 2005; Martin et al. 2007). However, some social scientists have argued that genetics has also been mobilized in increasingly creative ways that seek to undermine and disturb simplistic racial dichotomies and in ways that can be seen as both empowering and disempowering to specific 'racial' or 'ethnic' groups. Campbell (2007a: 184), for example, discusses ambivalence in U.K. press stories that addressed 'race', nation and genetics, claiming that 'genetic information is used in a creative politics of identity', but that it is valuable both to claims of 'bounded lines of singularity' and the 'historical realities of intermixture'. Rose argues that the 'molecular biopolitics of race' (2007: 186) should be located in its contemporary context of 'an age of choice and self-maximisation in which the body and its capacities have become central to technologies of selfhood' (2007: 8). He uncompromisingly claims that 'what is at stake in these arguments about human genome variations among populations is not the resurgence of racism, the spectre of stigmatization, a revival of biological reductionism, or the legitimation of discrimination: it is the changing ways in which we are coming to understand individual and collective human identities in the age of genomic medicine' (2007: 185). Furthermore, as Fullwiley (2008) attests, the personal identity politics of the scientists she studied can be used to frame their work as being committed to inclusivity and the reduction of health disparities, rather than being motivated by racist ideas about human difference.

Nevertheless, it has been shown that there has been a convergence between the racial/ethnic categories that are used in genetics research and those employed by the agencies of state bureaucracy (Epstein 2007; Fullwiley 2007; Ellison et al. 2007; Smart et al. 2008b). This is particularly significant because science and state bureaucracy are recognized as exerting particular authority in processes of 'social categorization' and 'group identification' that together contribute to identity formation (Jenkins 1996:

89). If the combined authority of state bureaucracy and genetic science becomes aligned behind a conceptualization of 'race' as socially constructed (see also Hartigan 2008), then the reasons for and implications of this should be considered most carefully. For example, in another field of biotechnology, Campbell (2007b: 95), reveals the racialized aspects of 'gamete-matching' in assisted reproduction, whereby regulations state that 'donated gametes should match the physical characteristics of the recipients'. The U.K., Spain and Norway, he explains, have different regulatory regimes, but all three, 'explicitly, or by implication, prevent clinically assisted cross-"racial" mixing' (2007a: 113). Such practices, he argues, can be distinguished from historical racialized hierarchies, but nonetheless demonstrate 'a tenacity of sensibilities over race and reproduction, and the power that "racial" mobility is deemed to hold' (2007a: 116).

Scope/Commitment

As we have reported, all of the papers we have considered from the Special Issue adopted a critical stance towards 'race' as a concept for understanding human health. When treating the Special Issue as a whole, however, the impact of the social construction of 'race' is somewhat superficial. It mostly appeared in passing as a descriptor, for example, when it was used to allude to a broader unresolved debate about the status of the 'race' concept (Mountain and Risch 2004; Keita et al. 2004) or when it featured as part of a quotation (Rotimi 2004) or the 'position' of the NHGC (Royal and Dunston 2004). On the surface, Keita et al. (2004) appear to be the most committed constructionists, as they present the only overt expressions of the cultural, political and historical contingency of human 'races', reject the (current) existence of human 'races' and argue for using population labels other than 'race'. We argue, however, that theirs is a shallow commitment to the idea of social construction.

We noted above that both Mountain and Risch (2004) and Keita et al. (2004) appear to 'bracket off' scientific activity from the realm of social construction. In respect to arguments about 'race', this could be a problematic partition to make. For example, a distinction between correct 'race' in science and erroneous socially constructed 'race' would hamper critical examination of the 'race' concept as developed and used in past and contemporary scientific attempts to understand human diversity. This parsing of scientific 'race' from 'race' in society also leaves room for the highly contentious claim that there is a natural or biological basis to human 'races' situated within our evolutionary history (Ellison and Jones 2002). Indeed, Keita et al. (2004) qualify their commitment to the inapplicability of taxonomies of 'race' to humans with the parenthesis '(at this time)'. An important caveat to our analysis, however, is that Keita has previously argued that the 'classical race concept' is intertwined with its meanings and uses in society and has been critical of the idea of 'core populations' (Keita and Kittles 1997: 534–35). The multi-authored composition of the paper in the Special Issue, as a position statement from the NHGC, obviously signals multiple 'voices' and leaves open deeper questions about the processes by which the consensus position was reached, and indeed the meaning of the potentially contentious qualification 'at this time'.

Notwithstanding these unknowns, deliberately leaving open the possibility of historical (or future?) human 'races' has implications for thinking about intersections with social identity. The existence of 'core populations' or 'true originals' (Keita and Kittles 1997: 535–36) creates the potential for contemporary individual or collective identity associations to those 'races'. Of course, we do not have to look too far back into history to encounter the destructive possibilities of the idea of historically 'pure' races (Kevles 1985). However, as was noted above in relation to fears about the revival of scientific racism, a position has been proposed which allows for greater flexibility in the ways in which genetic information is adopted and made meaningful as an aspect of social identity (Gilroy 2000). For example, Bliss (2008: 82) argues that genomic technologies of 'ancestry mapping' have entered the public consciousness and 'the laity has responded with new ways of conceptualizing human origins, personal identity and the self', for example, media accounts that use genetic genealogy to construct personal narratives. Nelson's (2008) ethnographic work with consumers of ancestry tests details the diverse interpretations, responses and 'self-fashioning' that can accompany testing, which transform understandings of 'race' and ethnicity.

The theme of scope/commitment also draws us back to our question about why these sets of authors in the Special Issue used the notion that 'race' is a social construction. The pattern of the appearance of social construction in the Special Issue is partially explained by interdisciplinarity in genomics research and the politicization of 'race'. As we have seen, a number of the authors had institutional allegiance to the NHGC – an interdisciplinary institution which effectively defines itself in terms of the politicization of 'race'. We can nevertheless speculate a little further on why these authors were using this notion.

Hartigan (2008) provides an insightful, if somewhat instrumentalist, account as to why some geneticists who investigate 'race' use ideas about social construction in their work (including some of those discussed in this chapter). He partially attributes this to a reliance on the sociocultural definitions of 'race' that are adopted from state bureaucracy, but he also develops his argument into an 'interests analysis'. He argues that this alignment not only allows scientists to link their activities to those outside of the laboratory (i.e., to policy and to healthcare), but that it also has a disarming effect because it 'invokes what critics "already" know' (2008: 183). This is acceptable, even preferable, for these scientists to the extent that the 'connection to the "social" does not compromise the scientific status of their claims … regarding the performance of genes' (2008: 172–73) or hinder their goals. What is given less attention by Hartigan (2008), however, is the more immediate sense of motive, including the 'face value' possibility that scientists may actually be wrestling with the notion that 'race' is a social construction because engaging with the concept may give them some analytical purchase on their subject matter.

While there are places in the Special Issue where the notion that 'race' is a social construction is used in a superficial manner, a positive sense of engagement was evident in at least some of the papers we have considered (even if we are critical in our assessment of their efforts). Furthermore, all of the papers we considered adopted a critical stance towards 'race' as a concept for understanding human health. We agree with Hartigan (2008) that the notion of social construction offers 'meagre guidance'; however, it seems to us that this makes it all the more likely that those working in the field will seek to understand and employ this notion. While Hartigan's (2008) analysis emphasizes that the scientists do this in ways that best serve (or least damage) their goals and research agendas, this seems to underplay the possibility that in practice this is a process that may actually enhance analytical clarity. This said, however, we are not naïve to the potential outcomes of genetic science adopting the notion that 'race' is a social construction into its toolkit of ideas or lexicon. If used in a superficial or uncritical manner, it could represent simply a more subtle but equally pernicious example of how unstable and fluid identities can be presented as if they are solid and fixed (if not 'real' and 'natural').

Hartigan (2008) goes on to formulate scientists' motives as part of a contest between analytical domains over the right to speak about 'race'. Indeed, Keita et al.'s (2004) argument in the Special Issue that the misappropriated 'race' of popular discourse is a social construction can also be interpreted using such an analysis, as a kind of boundary device that attempts to demarcate the legitimate scope and subjects of scientific enquiry (Gieryn 1983). There is rhetorical value in claiming that something is 'real'/'biological'/'natural' or that it is socially constructed. As such, when people make arguments that position 'race' as either socially constructed or 'real'/'biological'/'natural' (or indeed some blend thereof), these could actually reflect value judgments about what is important, knowable and/or worthy of study, or could be viewed as attempts to establish boundaries which enable them to position their claims and entitle them to 'speak' authoritatively.

Oppositional Form

As Hacking's (1999) analytical framing predicted, the notion that the 'social' exists in opposition to things that are 'real', 'biological' and/or 'natural' was somewhat evident in this selection of articles, particularly when social construction was referred to 'superficially' or in passing. There was, however, also some evidence of 'blurriness' in these boundaries. Mountain and Risch (2004), for example, defined 'social' groups in a way that appears to mark them out as naturally occurring. Rotimi (2004: S44) termed 'race' a 'largely social construct', although, as we have noted, this conceptualization leaves a number of questions unanswered. We will now further explore these boundary issues.

We noted above that Keita et al.'s (2004) distinction between 'race' as 'real' or 'race' as 'socially constructed', which makes socially constructed race 'not real', is a difficult distinction to support. Sociological accounts consistently emphasize that 'race' has 'real' consequences, in that it clearly has 'meaning' and 'effects'. Nevertheless, there are divergences within sociology about the ontology of 'race', to the extent that some have reached the conclusion that 'there are no races, biological or social' (Mason 2000: 8). This rejection of what might be termed social 'race' is founded on concerns about reification and the appropriate analytical focus of sociology (Solomos 2003). Instead, attention is focused on the processes through which social relations are structured by ideas (or ideologies) that uphold perceptions of meaningful racial differences, such as racialization and/or racism (Miles 1982, 1989; Omi and Winant 1986). In respect to our current discussion, this sociological work has at least two implications. First, it serves as a warning: simply claiming that 'race' is a social construction in genetics research does not mean that the work will not contribute to the reification of 'race'. Secondly, uncritical adoption of the notion of 'race' as a social construction could miss the significant ways in which processes of racialization and/or racism are influences on the kinds of population differences that geneticists are interested in studying (Duster 2005). This means that the scientific concept of 'race' cannot be easily partitioned from the identity politics that are associated with it. Furthermore, these identity politics have implications for the central concerns in this field of biomedical science – patterns of health and reproduction.

These are exactly the kinds of 'looping effects' to which Hacking (1999) draws our attention. It is possible to see this interaction of 'objects' and 'ideas' at the heart of the repeated scientific struggles to disentangle the 'social' and the 'biological' in the conceptualization of 'race'. Ellison and Jones (2002) argue that these attempts at disentanglement are forever complicated by the fact that social processes actually result in the differential allocation of genetic diversity. They explain that the act of classification inevitably results in the disproportionate allocation of some genetic traits to different groups (however these are classified); yet, importantly for this discussion, this disproportionate allocation is exacerbated when the principal classificatory characteristics stem from, and have a bearing on, assortative mating. This includes aspects of appearance, geographical origins and/or sociocultural affiliations, which are the characteristics underpinning traditional and contemporary classifications of 'race' (and related concepts such as ethnicity). Hartigan (2008) reaches a similar conclusion after critiquing the attempts of genetic scientists (such as Risch) to delineate the realm of genetics in terms of 'mating patterns'. He underscores the depth of the impact of 'culture' on 'genetics' by arguing that 'there are few matters more influenced by cultural rules, practices and beliefs than how people decide whether or with whom to mate' (2008: 184).

Indeed, the very ground on which debates about 'race' have traditionally been fought has itself been shaken by arguments about the 'destabilization of "nature"' which simultaneously unsettle the concept of 'the social' (e.g., Wade 2007). When the notion of 'race' is applied to humanity, there is a blurring of, and interaction between, things that may have once been distinguished as 'the social world' or 'the natural world'. In recent anthropological discussions of 'race' in transnational adoption, for example, it has been argued that nature and culture are interwoven or blurred (Marre 2007), or that there is a continuum of nature-culture (Howell and Melhuus 2007). If 'race' in popular discourses of identity and belonging blurs the lines between the social and the biological, and if genetic science looks likely to continue struggling to effectively tease them apart, we might ask what is the way forward?

Ideas about 'feedback loops and interaction effect' between social and biological realms are highlighted by Duster (2005: 1050) and have been discussed in bioethics, sociology and epidemiology (see Fullwiley 2008: 723). For example, in reviewing putative racial differences in bone density, Fausto-Sterling has argued for a reconceptualization of the underlying nature-culture dichotomy using a model in which 'the social produces the biological in a system of constant feedback between body and social experience' (2008: 658). Fausto-Sterling draws particularly on the argument championed by Nancy Krieger that humans are both biological and social creatures. She quotes Krieger's (2005: 2) argument that humans 'literally embody – via processes which necessarily involve gene expression – the dynamic social, material, and ecological contexts into which we are born, develop, interact, and endeavor to live meaningful lives' (cited in Fausto-Sterling 2008: 676).

These notions of 'embodiment' have been applied to discussions about 'race'. Wade (2004), for example, explains how life in racialized social environments inscribes 'race' on the body, using illustrations about hypertension and sport. In these examples, physical differences actually result from social settings in which processes of racialization structure experiences and outcomes. Moreover, the biological consequences of racialized social relationship become easily misconstrued as further evidence of the biological underpinning of racial difference. Wade (2004) uses theories of embodiment to explain these processes and their contribution to the endurance of 'race' in human imaginations. Nevertheless, it is also possible to interpret these processes using Hacking's notion of a 'looping effect' between ideas (the categories) and objects (the categorized). We might add that in this case the 'looping' changes the object in ways that make it better fit the idea. A racialized narrative of human biological difference can, it seems, be a self-fulfilling prophesy.

After adopting an embodiment model in her study of bone density, Fausto-Sterling (2008) concludes that where differences in health outcomes are attributed to 'race', it is necessary to begin a search for the reasons among its numerous potential (and intersecting) social, cultural and biological correlates, and that it should be incumbent upon researchers to carefully define and defend their categorizations. Similar conclusions have been reached previously, however, and it has been stipulated in high-profile biomedical science journals that whenever 'race' or ethnicity are employed as categorizations, they should be tightly defined and justified according to the context in hand (e.g., British Medical Journal 1996; Nature Genetics Editorial 2000; see also Freeman 1998; Kaplan and Bennett 2003; Outram and Ellison 2006; Smart et al. 2008b). The extent to which such guidelines are followed, or can be followed, has nevertheless been held open to question (Bhopal 1997; Ellison and Rosato 2002; Sankar and Cho 2002). As such, it is now important to explore how (or if) concepts such as embodiment would help to encourage a more routinely critical stance towards 'race' in genetics and biomedical science that could be realized in working practice.

Conclusion

Prior to his article on ‘race’ in medical genetics, Hartigan (2006: 8) had argued that it is ‘not enough’ to claim that ‘race’ is socially constructed. This is partially because he thinks that it leads ‘directly to claims that race is really just a “myth”, a form of false consciousness, or that it is entirely a function of racism’, and these ideas sit uncomfortably alongside what he refers to as “peoples” deeply engrained sensibility that race is actually very real and palpable, something that they both experience and can “see”’(ibid.) While the usage of the notion of social construction in the Special Issue may not necessarily invoke ideas that ‘race’ is a myth, false consciousness or a product of racism in this ‘direct’ manner, the divergent usages of the notion aptly illustrate the competing dynamics to which Hartigan refers.

Sociological accounts offer some insights into these dynamics by attending to the processes by which ‘race’ becomes socially meaningful and, as we have seen, a number of authors have considered the possible impacts of genetics on such processes. Cornell and Hartmann succinctly explain that the processes of creating ‘races’ have involved human choices about characteristics, categorizations, assignment of meaning and courses of action:

> We decide that certain physical characteristics – usually skin colour but perhaps also hair type, stature, or other bodily features – will be primary markers of group boundaries. We invent categories or persons marked by those characteristics. The categories become socially significant to the extent that we use them to organise individual and collective action. In other words, the categories become important only when we decide they have particular meanings and act on those meanings. (2007: 27)

As we have shown, debates about ‘race’ and genetics certainly touch upon the assignment of meaning and courses of action that follow. Concerns about the potential for genetics to (re)invigorate racialized worldviews have been counterpointed by suggestions that ‘race’ and genetics interact in ways that are somewhat fluid, flexible and novel. Discussions of identity politics relating to ‘race’ in genetics – at least those reviewed in this chapter – have thus been cast as aspects of racialization/racism and/or as expressions of ‘consumption-oriented economies of difference, choice and malleable body image’ (Campbell 2007b: 101).

It is perhaps appropriate to conclude by turning to the other aspects of construction processes outlined by Cornell and Hartmann (2007): the characteristics that mark boundaries and the categorizations and persons that emerge. Gilroy (2000: 47) has argued for recognizing the shift towards molecularized ‘race’, whereby ‘the boundaries of “race” have moved across the threshold of the skin. They are cellular and molecular, not dermal’. While genetic technologies have focused attention on DNA markers, this quote appears to imply that the shift to molecularized ‘race’ may have actually negated the previous physical markers of ‘race’. It is perhaps more advantageous to consider the ways that DNA can become an additional boundary-marking characteristics of ‘race’. Indeed, in a similar vein, the kinds of categorizations that are used – and persons marked by that categorization – have seen 'race' and ethnicity joined (but not replaced) by ancestry, heritage and 'admixture'. Theories of 'admixture' may sound novel but, as Fullwiley (2008: 726) argues, these invoke a notion of 'racialized genomic fractions' because 'new genetic technologies that link geography and "ancestry" do not necessarily depart from older notions of "race"'. The usage of the notion that 'race' is a social construction in the Special Issue of *Nature Genetics* can be located as part of this coexistent multiplicity. Nevertheless, such a coexistence should not detract from the power or importance of the notion of 'race' in particular. It is worth reiterating that racialization is not simply a 'problematic outcome' of this branch of biomedical science but also appears to play a significant role in shaping the very contours of the subject which scientists are struggling to better comprehend.

As the boundary markers and categorizations in debates about genetics and human populations are multiple and overlapping (and potentially socially meaningful), they seem likely to remain ambiguous and subject to disagreement and blurring. This ambiguity is readily found in consumer-facing corporate science. *23andMe*, which sells DNA tests for health risks, tells customers that its information on, for example, hypertension is suitable for people of 'European ethnicity' (www.23andme.com). We are left in little doubt that differences between groups are important here and that we should be able to decide whether or not we belong to the group which is specified. However, we are still none the wiser about what the company means by ethnicity, where the boundaries of Europe lie and what proportion of our genome needs to be considered European before this potentially important information about health risks becomes relevant to us.

Note

1. Freely available at: http://www.nature.com/ng/journal/v36/n11s/index.html.

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2

Mobile Identities and Fixed Categories

Forensic DNA and the Politics of Racialized Data

David Skinner

Introduction

A number of commentators have detected the beginnings of a 'biopolitics' of race, ethnicity and racism in which DNA becomes an object of value and struggle (Skinner 2006).[1] This dynamic politics involves the interplay of experts from both the natural and social sciences, policy makers and the lay public in sometimes surprising and novel configurations. But although in some situations new genetics are part of changes in understandings, representations and experiences of 'race', science is also being reframed within contemporary sociopolitical and governmental settings. The intention of this chapter is to contribute to the analysis of this changing politics by considering a basic but fundamental issue: if, why, when and how can people be categorized into distinct racial or ethnic groupings?

As other contributions to this collection show, identity (in all its multiple and ambiguous meanings) is central to the new politics and practices of DNA. We should remember, however, that identification is not just about self-expression but is also about the expert observation and organization of people in groups. Discussion of categories brings us to the heart of many of the new practices that connect 'race' and genetics. Patients are, for example, placed into groups in order to make sense of patterns in DNA and differences in drug response. Population genetics, as the name suggests, depends on the allocation of people into subpopulations. Similarly, in genealogical projects, self is understood by locating the individual in a relationship to categories (even if this is to acknowledge admixture). Each of these forms of genetic practice is dependent on 'racialized' DNA data – that is, data recorded, managed and analysed using ethnic and racial categories.

This chapter will consider a sphere of the new genetics where the collection, organization and use of racialized DNA data is both commonplace and contested – criminal justice. Taking the example of a state-run forensic database (Britain's Police National DNA Database), it shows some of the complex ways in which discussions of race and DNA can be linked to new social and political conditions. Also, for all the universalistic claims of the new genetics, their articulation and interpretation is highly variable, both institutionally and nationally. Detailed analysis of the racialization of the database and the political debates it has provoked shows how the new genetics interacts with existing and emerging wider regimes of classification and identification.

This chapter begins with a discussion of categorization in general, arguing that it is fundamental to much policy, scientific and political practice around race, ethnicity and racism. For all this, it is also an area marked by disputes and ambivalence about the reliability, validity and ethical implications of using categories. This analysis informs the core of the chapter, which considers the 'practical politics' (to borrow Geoffrey Bowker and Susan Leigh Star's [1999] phrase) of racial categories and categorization in forensic science in Britain. The example of forensics – in particular, the mass-taking of DNA samples by the state, and their transformation and storage as computerized DNA profiles without the need for normal standards of free consent – reveals aspects of identification and citizenship different from those typically discussed in relation to, for example, health or genetic ancestry testing. The chapter explores political and expert debate about the use of race categories to organize genetic data and about the value and meaning of such racialized data. This debate takes place in the context of systemic racism and minority disadvantage within the British criminal justice system. The role of racialized data as either an indicator of or contributor to that disadvantage is ambiguous. Discussion of the implications and reliability of racialized data continues as inequalities grow; for all the energy put into monitoring the ethnic makeup of the database, the resulting data appears not to allow full consideration of how collection of DNA may itself be a driver of inequality.

A key point of this chapter is the uniqueness of the British case of the racialization of forensic DNA: the details of the debate about categories has features that belong firmly to one specific time, place and policy context, and as such act a counter to universalistic predictions of the sociotechnical impacts of new genetics. However, the preoccupation and dissatisfaction with categories that the chapter charts has a more general relevance. As the chapter illustrates, in the new biopolitics of DNA, three apparently contradictory trends coexist. The first of these is the promise of genetics to offer truths about identity and group membership. The second is the way that official, national standardized systems of race classification and data collection feature in policy making and scientific practice. The third is a growing preoccupation with ethnicity as a personalized process of active identification. As the chapter will conclude, the evident tensions between these three trends are often presented as problematic, but in practice they support each other and allow the racialization of DNA to take place.

Race Categorization

Discussions of race and ethnicity often draw a questionable distinction between 'real' or 'constructed' categories (for a more detailed discussion of this issue, see Chapter 1 in this volume). This distinction is unhelpful if 'constructed' is equated with 'false'. One does not have to deny the reality of patterns in genetics, life chances or shared cultural traditions to acknowledge that categories used to make sense of them are constructs. The discussion of genetically-based differences in drug responses between groups, using DNA to decide race ancestry and, indeed, showing the association between race and life chances all involve turning continuous, clinial or cline-like distributions of people and characteristics into distinct, grouped populations and variables through an active process of categorization. Different methods of sampling, measuring, naming and sorting will hide or emphasize different population characteristics and also highlight or downplay similarity or difference across the population as a whole. But revealing the artifice and effort involved in applying racial and ethnic categories does not automatically imply that they are unreliable or invalid any more than demonstrating a connection between a population category and a variable shows that race is 'real'. There is no unique way of dividing up populations, there are better or worse ways of doing this and that better or worse depends on why it is being done.

Discussions of the legitimacy of race categories are at once conceptual and political, implying different analyses of the problem of and solutions to racism. Some analysts equate the problematization of all category distinctions with anti-racism. Others view racialized data as an instrument of anti-racist politics and policy, and argue that an apparently 'colour-blind' approach (which views categories as meaningless or of no consequence) merely reinforces core themes of contemporary racism. This latter point is well put by David Theo Goldberg (2008), who writes of the complexity of the connection between an 'anti-racial conception' and an 'anti-racist commitment'. We are, argues Goldberg, at a moment where the necessity and complexity of that connection is often lost; a moment where "the refusal of racism reduces to racial refusal; and racial refusal is thought to exhaust antiracism."

> Now, what is refused in this collapse, what buried alive? What residues of racist arrangement and subordination – social, economic, cultural, psychological, legal and political – linger unaddressed and repressed in singularly stressing racial demise? (Goldberg 2008: 1)

One particular tension running through the discussion of racial and ethnic categories lies between analysing their use in general and acknowledging the great variations that exist between locations in significance and format. I write from an experience of Britain, where racial and ethnic categorization is a routine feature of public life in ways that may in some ways be familiar in the U.S.A. but that do not have an equivalent in other European countries. In France and Germany, for example, there is little or no official racialized data collected or used by the state. The British approach is unique in Europe. The debate currently taking place in France about whether the state should begin to assemble such data takes place on very different terms (and concerns very different categories) from those familiar in Britain (Finney and Simpson 2009: Chapter 2).

The new biopolitics of genetics and 'race', as expressed in the case of forensic DNA, is profoundly influenced by and connected to other practices and politics of ethnic and racial classification. In Britain the placing of people into distinct racial or ethnic categories is a recurring and largely unchallenged feature of the contemporary setting. Racial and ethnic categories are, at one at the same time, analytical tools, policy instruments for knowing and managing populations, and the raw material of identity politics. But however well established the principle of racial categorization is in Britain, the process of categorization is contentious and the detail of categories remains fluid. The categories used in the U.K. Census provide the basis of other systems of categorization used across the public realm, in policy practice and (as Smart et al. discuss in Chapter 1 in this volume) are also frequently used by medical and genetic researchers. But since their first appearance in 1991 the categories (and the technique of categorization) have changed at each ten-year census point. The 2011 census featured a new multiple set of questions encompassing national identity, racial or ethnic identity and religion. In 2011 the Scottish census for the first time used different race and ethnicity categories from the census for England and Wales.

While the collection and discussion of racialized data is an established feature of academic and public life in Britain, categories are a continued arena for dispute in the academic and public realms, to the extent that some academics from both the natural and social sciences have questioned whether they should be used at all. Within the social sciences, racial and ethnic categories are frequently utilized in research but have also been subjected to two kinds of critique. The first argues that using racialized data is methodologically invalid and politically reactionary because it contributes to the reification of racial differences, giving them a solidity and legitimacy that they do not deserve (see, for example, Robert Miles' [1993] critique of the 'sociology of race relations' and also Carter 2000). The second suggests that the collection of racialized data may do no good because it seems a substitute for action (or an alibi for inaction) on inequality and racism by, for example, shifting the focus in variations between minorities' 'progress' (examples of this argument made in the 1970s and 1980s are discussed in Gordon 1992; for a more recent example, see Gillborn 2008).

This social science discussion links (as we will see later in the chapter) to similar uncertainties and debates in the life sciences and in the wider public domain. If, when and how people should be placed into racial or ethnic groups, which categories are legitimate and what category membership means are all questions that detain not only academic researchers but also policy makers, policy practitioners and those who are categorized. A recurring feature of the discussion of categories is that developers, users and subjects of systems of categorization also harbour an ambivalence about categorization – continuing to use the categories and at one at the same time doubting their reliability or validity and highlighting their potential for misinterpretation and misuse. Laypeople will at points place themselves within standard categories for pragmatic or 'strategic' reasons (Hickman et al. 2005; Santos 2009) whilst chafing at the simplifications of origins and identity involved. This familiarity with the procedures and labels of categorization can be accompanied by dissatisfaction with the categories and the processes of categorization, and mistrust and misunderstanding of what happens to racialized data (Skinner 2009). In parallel to the ambivalence of the categorized, social scientists and natural scientists use categories while holding methodological, practical and ethical concerns about their legitimacy.

Whatever their peculiarities, it is also useful to view official and academic racial and ethnic categories as one particular variation on the use of standardized systems of classification in the production and management of knowledge that is a ubiquitous feature of contemporary intellectual and institutional life. Standardized categories, in Bowker and Star's memorable phrase, 'saturate our environment' and are a crucial part of information infrastructures built by the state and other key organizations. As such, they serve as decision-making tools and aids to the coordination of activity across time and space. The operation of these infrastructures, their categories and ever-growing datasets is in the contemporary world dependent on ever more powerful computer-based technologies for storing, organizing, analysing and communicating information.

Bowker and Star's work is a touchstone in the analysis of the collection and use of racialized data. Researchers of new race biopolitics have cited Bowker and Star to make the point that categories embody ethical and political decisions (for example, Kahn 2008): 'Each standard and each category valorises some point of view and silences another' (Bowker and Star 1999: 6). Others, notably Fullwiley (2007), make use of Bowker and Star to support the argument that, once established, categories themselves come to be powerful, channelling and constraining discussion and experience in ways that come to shape the realities they purport only to describe.

There is, however, another dimension of Bowker and Star's analysis that should be added to the discussion of racialized data. Bowker and Star show us that it is not only systems of ethnic and racial classification that can seem messy or contradictory. Systems aspire to consistent classificatory principles and mutually exclusive categories, and leave nothing unclassifiable (Bowker and Star 1999: 11). However, no working classification can meet these requirements. For all their significance and apparent solidity, large-scale categorization systems inevitably have a degree of variation, ambiguity and plasticity, and there are always deletions and anomalies. Although categories are inspired by ideals of objectivity, precision and standardization, in practice they are continually (re)constructed hybrids that encompass the conventional, the local and the everyday. Central to Bowker and Star's analysis of systems of classification is the way in which categories act as 'boundary objects' that allow cooperation and discussion across contexts. Standardized classification systems develop utility and usability through what Bowker and Star term a 'dynamic compromise' (55). They must maintain some kind of coherence across time and space while permitting enough flexibility and customization to allow for the situated and distributed knowledge of the realities that they wish to encompass. As Bowker and Star highlight, large-scale systems of categorization have 'recursive' problems of standardization and require ongoing maintenance work. Much of the ongoing work required to operate systems and the arguments, uncertainties and decision-making processes that shape them are 'hidden' or 'deleted' (Berg 1997; Schwartz, Nardi and Whittaker 1999).

This last point is important because a position frequently adopted by critics of systems of collection and use of racialized data is to unveil the inconsistencies in the operation of categories. This discussion of the operation of standard systems of classification in general reminds us that the inconsistencies, shifts and disputes we find in race categorization may be exceptional, but only by degree. However, this is an area where effort, uncertainty and artifice around the operation of categories is never fully obscured from public view.

DNA, Race and Criminal Justice in Britain

Although, they have grown to become some of the largest collections of genetic information in the world, police forensic databases did not initially provoke the same kind of media, political, legal or analytical concern as biomedical DNA databases (Tutton and Levitt 2009: 85). As Richard Tutton and Mairi Levitt show, despite this contrast, forensic databases share important features with medical biobanks. Like other applications of the new genetics, forensic databases are 'promissory objects' – innovations driven by claims as to their future significance more than their current utility (this point is also elaborated in Fortun 2008). As with biobanks, the promise of forensic databases is delayed: despite some high-profile successes, their overall impact on crime detection and conviction rates is limited.

Faith in forensics to deliver a step-change in the efficiency of criminal justice rests on a powerful consensus as to the reliability of DNA matching (using techniques pioneered in the U.K.) to potentially resolve questions of guilt or innocence:

> For perhaps the only time in history, a technology has emerged with the epistemic authority to credibly challenge the law's claim to being a truth-producing institution. (Cole 2007: 98)

> What is striking is that the dominant controversies about DNA technology now revolve around the competence of the criminal justice system rather than the reliability of the technology itself. (Lazer 2004: 4)

Since the publication of Cole's and Lazer's assertions, claims about the fallibility of evidence based on DNA profiling have begun to appear in the public domain, particularly in the U.S.A. (see, for example, Felch and Dolan 2008a, 2008b).[2] Nevertheless, the credibility of techniques to sequence and match forensic DNA remains very high and influences discussion of the merits of the mass construction, storage and manipulation of DNA records. It is useful, however, to distinguish between four uses of DNA in criminal forensics: first, the matching of the DNA of a known suspect to crime-scene DNA; secondly the verification of identity (i.e., is someone who they say they are?); thirdly, population surveillance via the cold searching of databases of DNA in the hope of matching an as-yet-unknown suspect to crime-scene DNA; and, fourthly, the analysis of DNA data to gain an insight into patterns and causes of criminality. This distinction is important: the reliability and ease of matching DNA to link suspects to (or eliminate them from) crime scenes may be hard to question, but the desirability and utility of mass genetic surveillance or the assembly of DNA databases to research the genetic components of criminal behaviour are separate issues, even if they are often bundled together.

In Britain the Police National DNA Database (referred to as the NDNAD) was established in 1995. Official estimates in 2009 put the size of the database at 5.6 million records, equivalent to eight per cent of the population. The NDNAD is often claimed to be the largest forensic database in the world; it is certainly (in terms of population coverage) the most comprehensive.[3] This reflects a particularly pronounced preoccupation in the U.K. with the potential of DNA analysis, 'scientific policing' and sociotechnical applications of social control (Innes and Clarke 2009). The NDNAD is not only the largest but also the most used database, with 'cold searches' regularly conducted to match crime-scene samples to existing genetic records. This is in marked contrast to the U.S.A. where, as Lazer and colleagues point out (2004), despite considerable financial and political investment in the building of databases, financial constraints have limited their day-to-day use.

Although the use of 'DNA fingerprinting' and later faster and cheaper matching techniques in the detection of crime and the righting of miscarriages of justice soon became a staple of media coverage, in its early years the NDNAD attracted relatively little political or academic attention. By 2006, however, this had changed. There are two underlying factors to consider here. First, new campaigning groups in Britain were successful in lifting concerns about privacy rights up the political agenda. Initially these concerns focused on government proposals for a national identity card scheme, but broadened to critique 'the database state'.[4] Secondly, there is the continual, unchecked growth of the NDNAD. This growth results from the storage of material not just of those convicted of crimes but also (since 2001) those charged but later acquitted of a recordable offence, since 2003 those arrested but never charged with a recordable offence and since 2008 those subject to control orders under counterterrorism legislation. The database also contains DNA voluntarily donated as part of an investigation. There is currently no limit on the length of time these computerized records are held. Thus, the NDNAD is a probably the best illustration of the growing scope of forensic databases around the world, arguably marking what Tutton and Levitt and others view as a purposive shift from a database of 'active criminals' to a tool for policing the population as a whole.[5] At the time of writing, the U.K. government is currently formulating its response to a European Court ruling requiring the deletion of the records of over 900,000 people who have samples stored and records on the database despite never having been convicted of a serious crime (Almandras 2009).

The growth of the NDNAD and the debate which it has prompted raise a whole range of interesting questions about surveillance and privacy and about the relationship between the state and its citizens. The flipside of hopes for genetics to deliver a step-change in crime detection and deterrence is that investment in forensic databases has developed in a period when fears of crime and, debatably, attempts to 'govern through crime' have been in the foreground (Cole 2007). We can link the growth of forensic databases to a phenomenon that Greg Elmer and Andy Opel (2008) term pre-emption: the assumption that authorities can and should predict and manage potential risks rather than react to crimes once they have been committed. Thus, the retention of the DNA of those arrested, regardless of whether they are charged with or convicted of a crime, and the storage of the DNA of petty criminals are justified on the basis that they present a heightened risk of future criminal behaviour. Less commonly explicitly articulated is another dimension of this logic of pre-emption: that recording people on the database will act as a deterrent to future criminal activity.

While the development of the NDNAD has been driven and sustained by the faith in its ability to provide a technological fix to crime and to fear of crime, its impact on deterrence or detection is hard to quantify. Recent official figures show that between 2007 and 2009 (during which period the number of records on the database grew by a million) crime detection via NDNAD searches fell from over 41,000 in 2007 to just under 32,000 in 2009 (written parliamentary answer 25 November 2008, Column 1250W). We might contrast the seamless, super-efficient 'truth machine' (borrowing a phrase from the title of Lynch et al. 2008) envisaged by utopian accounts of the future of the database technology (and also to an extent in the dystopian fears of its critics) with the messy day-to-day realities of the taking of DNA, its transformation into electronic data and the management and manipulation of that data in the database. It is estimated that between thirteen and fourteen per cent of all the records on the NDNAD are 'replicates' created when a genetic profile is loaded onto the database on more than one occasion. The National Police Improvement Agency (NPIA) has said that replication could occur 'for example if the same person provided different names, or different versions of their name, on separate arrests, or because profiles are upgraded'. Meg Hillier MP told the House of Commons that replication rates were being reduced and that 'much work has gone on to educate police forces in taking DNA samples' (House of Commons Home Affairs Select Committee 2008: 76). In July 2009 police and prison inspectors reported finding DNA samples next to ice cream in a West Yorkshire Police freezer. In August 2009 an official inspection of eight Cambridgeshire police stations found DNA samples stored alongside amongst other things a half-eaten takeaway meal and frozen raw meat: 'Fridges in most suites were full of forensic samples that had not been dealt with and there was widespread evidence of systematic failings in the handling, storing and destruction of forensic and DNA samples' (BBC, 4 August 2009).

In January 2010 the Home Office also conceded that a substantial but unknown number of long-serving prisoners convicted of very serious offences did not have records on the NDNAD. All the above suggests the hard ongoing work of sociotechnical construction that the database requires.

In response to increased public and political focus on the NDNAD, there has been a strengthening of the governance of the database. This move has been framed as ensuring continued 'public trust' (see, for example, House of Commons Home Affairs Select Committee 2008). Much of this has followed a pattern set by medical databases. We can see this first institutionally with the involvement of the Human Genetics Commission, a U.K. government body whose members' experience and expertise was previously in health, and the establishment of a National DNA Database Strategy Board and Ethics Advisory Group (2007) with a strong representation of people from a biomedical background. Secondly, it follows a familiar pattern for the management of 'difficult' issues thrown up by the new genetics, in that there is a concerted attempt to frame problems as 'ethical' dilemmas and as belonging to the domain of the expert community of bioethicists rather than being matters of politics and public interest. Whatever its influence, the regulatory structure has no formal statutory basis (Almandras 2009: 4–5). In contrast to some other European countries (see Machado and Silva 2009 for discussion of the Portuguese example), Parliament has never formally decided or ratified the parameters and use of its national forensic database. A report from the Human Genetics Commission (2009) called for such a legislative process to take place and for the role of the Ethics Advisory Group to also be placed on a firmer footing.

The 'ethnic appearance' (a term worthy of reflection) of each person placed on the NDNAD is recorded (along with their age and gender) and stored with their genetic data. Racialized DNA allows the analysis of relative rates of representation on the NDNAD across different population groups. While this also holds for age and gender distributions (the records on the database are eighty per cent male and predominantly from the under thirty-five age group), other patterns are less easy to explore because of the lack of categorization, notably class. Critics of the database and/or of institutional racism in the criminal justice system have highlighted the unequal likelihood of members of different ethnic groups having their DNA sampled and stored. Calculations in 2006 suggested thirty-seven per cent of black men had a record of their DNA stored in the database. This compared with thirteen per cent of Asian men and nine per cent of white men. These estimates are more striking when considering the age groups most likely to have samples on the NDNAD. It was estimated in 2006 that seventy-seven per cent of black males aged fifteen to thirty-four have a police DNA record (Randerson 2006). The campaigning group Black Mental Health also highlighted the large proportion of black people living in London on the NDNAD. Official figures also suggest that nearly a quarter of all people never convicted of a crime but with a NDNDA record are from ethnic minorities.

The mass collection of the DNA of young black men should be considered, together with the use of 'familial' and 'low stringency' searches of DNA databases (Cole 2007; Greely et al. 2006). This technique investigates a suspect's blood relatives (see Williams and Johnson 2005 and 2008 for discussion of its use in the U.K.). Family searching potentially reinforces and magnifies the inequalities between groups likely to be on the database by, in effect, also placing close blood relatives under genetic surveillance. Writing about the U.S.A., Cole plausibly speculates that in situations where arrest and conviction rates are high, 'this could quickly result in effectively incorporating whole neighbourhoods and ethnic communities into the database' (Cole 2007: 103). The same holds true in the British context, although the numbers of such searches currently conducted is relatively low (National Police Improvement Agency 2007: 6).

As Cole's work shows us, we can assume from other disparities in patterns of crime and the operation of the criminal justice system that particular minority groups are over-represented on the U.S. CORDIS forensic database. Henry Greely et al. (2006: 258) infer from conviction data that forty per cent of the records on the U.S. system belong to African Americans. We do not have official data to support this because, unlike the NDNAD, CORDIS does not classify individual records by race. Kahn (2009), however, describes a different way in which a forensic database can be racialized. In U.S. court cases forensic evidence is routinely retrospectively interpreted in racialized form, with the random matched probability (RMP) odds of someone else having the same DNA profile being reported in relation to race-specific population databases. As Kahn shows, this race-odds approach might have had some legitimacy when testing was in its infancy, but more sophisticated techniques now generate RMPs in the billions, whatever racial group they are compared to: 'With such odds, the practical utility of distinguishing RMPs by race disappears. Nonetheless, race has remained ingrained in the framework of the production and interpretation of forensic DNA evidence' (Kahn 2009: 328).

One concern raised about the growth of forensic databases has been their potential for 'profiling' offenders – seeking patterns in offender DNA to predict criminality in individuals and groups. In both the U.S.A. and Britain there is also a debate about the use of DNA to construct racialized profiles of unknown perpetrators (for an early example of the work in this area, see Lowe et al. 2001). The scientist credited with pioneering DNA fingerprinting foresaw its use to predict the phenotypical features of suspects as long ago as 1993 (Jeffreys 1993). In the same year Ian Evett of the Home Office Forensic Science Laboratory in Birmingham claimed in the *Journal of Forensic Science and Society* that a DNA test that could distinguish between 'Caucasians' and 'Afro-Caribbeans' (cited Duster 2004: 326). Although there are now some indications that the U.K. government will tighten up the governance of secondary use of DNA collected for forensic purposes, this had previously been seen as a resource ripe for commercial and scientific exploitation. The Home Office has in the past given permission for material from the database to be used in research projects investigating the feasibility of inferring a crime suspect's ethnicity or skin colour from DNA, although this inference would be removed at once (i.e., linking location and ancestry) (GeneWatch UK 2006). The science behind the prediction of race/ethnic appearance from DNA is questionable: many of the practical and conceptual problems with linking genotype with phenotype or with region of origin that have been highlighted by critics of racialized medicine and ancestry testing also apply to this area (Bolnik 2008; Dupré 2008; Feldman and Lewontin 2008).

Discussion of ethnic profiling has not been helped by the varied lay, policy and scientific use of the term 'profiling' itself and, in particular, slippage between discussion of three distinct practices:

1. The prediction of the ancestry and/or racial appearance of an unknown suspect using crime-scene DNA.
2. The isolation of specific genetic markers associated with criminal activity and the connection of these markers to particular ethnic/racial groups.
3. The singling out of particular population groups for extraordinary policing by placing members of the group under genetic surveillance.

In writing of SNP profiling of offenders as a 'new phrenology' (Duster 2004), Troy Duster and others have conflated the profiling of criminal types, the profiling of racial types and the special policing of particular groups. There is, however, little evidence that the three types of ethnic profiling are combining to any great extent in the ways that Duster's formulation implies. The fears of Duster and others of a 'new phrenology' seem to miss the ways in which contemporary forensics uses distinct biological and social registers. This is not a simple continuation of or return to a eugenics discourse. While Cole (2004: 81) rightly highlights the potential for figures on the ethnic composition of databases to give (perhaps unintentionally) credibility to biologically deterministic accounts of criminality, racial profiling can and does take place without a direct link between genetic charactistics and criminal propensities. When racial markers are sought, they are in 'junk' DNA (Abu El-Haj 2007). Tellingly, this same confusion between different senses of 'profiling' has been used to deflect concerns about the racialization of the NDNAD. The Home Office was in 2008 able to reassure a Parliamentary Select Committee that the NDNAD could not be used in an attempt to develop genetic profiles of those likely to offend. Their argument was that the record of an individual on the NDNAD consists of ten markers from areas of DNA which do not play an active role in determining personal characteristics: 'The NDNAD therefore is not and will not be used in attempt to correlate particular genetic characteristics with propensity to commit crime' (House of Commons Home Affairs Select Committee 2008: 80–81).

While this was presented as a position on 'profiling', it did not preclude the development of techniques to divine the likely racial/ethnic origin of a crime suspect or indeed the use of the NDNAD for extraordinary policing of particular racial and ethnic populations. Both of these continue to be features of the operation of the database.

Categories, Categorization and the Politics of the DNA Database

The disproportionate numbers of black people on the database and the use of DNA to profile suspect ethnicity are clearly areas of interest and concern. The collection and storage of genetic data in racialized form is an important context to these developments – although the U.S. shows that forensic DNA can be racialized at other points than an individual database record. To understand the parameters of the controversy about the racialization of the NDNAD, we should, however, acknowledge that the classification of genetic material is only one of many different ways in which racial and ethnic categories operate in the British criminal justice system. Racialized data is routinely collected and used. To provide two examples:

- Until recently, every police service in England had government targets for the recruitment of police officers from ethnic minorities.[6] They regularly report figures of applications from, recruitment of, retention of and promotion of people from particular ethnic minorities. Forces engage in 'positive action' to recruit and promote people who fall within particular categories.
- Every street 'stop and search' and 'stop and account' conducted by the police should result in an official record. This record includes details of the stopped person's ethnicity. The resulting data is used to produce service level and national statistics.

Recruitment targets and stop and search figures are only two examples of what is a much wider phenomenon: a mass of racialized data collected and reported relating to many different aspects of the British criminal justice system. There has been a long history of poor relations between the police and Britain's black and Asian minorities. The 1999 Macpherson Inquiry into the botched police investigation into the racist murder of Stephen Lawrence argued that the police were 'institutionally racist' (Macpherson 1999). Minorities were not only victims of face-to-face discrimination by individual officers but suffered because of the normal operating assumptions of the police and other aspects of the legal system. Black people are over-represented at every punitive stage in the criminal justice system (Bowling and Phillips 2002; Riley et al. 2009). The Race Relations (Amendment) Act 2000 placed a requirement on all public bodies, including the police and prison services, to actively promote 'race equality' and 'cultural diversity'. Later (following civil disturbances in 2001, the war on terror and the July 2007 London bombings), 'community cohesion' became the focus of policy making. These issues have been formally linked to public sector performance measures and have become themes of training and professional development across the public sector. In this setting, the collection, collation and evaluation of racialized data has become, in the past decade, an increasingly important feature of the management in criminal justice (see, for example, Riley et al. 2009) and other areas of public service provision such as health, education and housing.

However, we should note that across the three examples from criminal justice – the DNA database, recruitment targets and stop and search – categories are important but also contentious and politicized. In all three cases there is a lively ethical, methodological and practical debate about the collection and use of racialized data that extends across the value of collecting the data by category, the meaningfulness of categories, which categories are worthy of inclusion and the reliability of techniques of day-to-day classification on which they depend.

It is worth considering the connections and disjunctions, the similarities and differences between the politics of 'biological' and 'social' in these conditions. To what extent is racial categorization deemed a different issue when it is linked to genetic data rather than social circumstance? It is notable that different interests support the collection of some kinds of racialized data and not others. Many within the police see the recording and reporting of racialized data on stop and search or recruitment, retention and promotion as unnecessary and/or unreliable. There is a concerted campaign against the recording of data on stop and search as turning police work into overly bureaucratic 'form filling'. A different group of campaigners raise concerns about the collection and use of racialized genetic data. Often these politicians (for example, the Liberal Democrats), race relations professionals (for example, the Commission for Racial Equality and its successor organization, the Equality and Human Rights Commission) and campaigning groups (for example, Black Mental Health) will be supportive of the collection of racialized data on stop and searches and police recruitment.

Another telling point of comparison relates directly to the process of categorization. Racial categories utilized across the British criminal justice system focus on broadly similar groups. These are termed 'ethnic' but usually relate chiefly to black, Asian (in a British context meaning people whose family origins are on the Indian subcontinent) and other groups historically seen as been of different appearance to the majority white population. However, allowing for that broad focus, there are significant differences in the categories used. The NDNAD utilizes the 'PNC' (Police National Computer) classification. This classification is well established for internal use within the police: it is used, for example, by the police to describe suspects in witness statements. The other examples use the '16+' classification developed for the 2001 national census and now frequently used in 'ethnic monitoring' across the public sector. The differing categories of the two systems are summarized in Table 2.1. As the table shows, category differences reflect more than variations in terminology or approaches to the consolidation of subsets into population groups. The PNC classifications of 'Arab' and 'Dark Skinned European' have no equivalents in other areas of U.K. policy practice. The PNC system also precludes the categorization of people as 'mixed'.

These two forms of categorization (one emerging from internal police practice and the other from wider policy parameters) are not the only potential or actual approaches to the issue. One alternative comes from Black Police Associations (BPAs) in England and Wales. In the BPAs, what Holdaway and O'Neill (2006) term 'police ethnicity' rests on a distinct working experience that mark 'black' officers as different from 'white' officers. The U.K. National Black Police Association website defines 'black' as follows: 'The emphasis is on the common experience and determination of the people of African, African-Caribbean and Asian origin to oppose the effects of racism. Everyone within policing is eligible to join the NBPA (There is no barrier to membership).'

As the BPA example illustrates, there is variation not only between categories used but also in practices for placing people into categories. With the recording of DNA, people are categorized based on 'the operational judgement of the arresting officer'. In contrast, many other categorization practices in the criminal justice system utilize 'self-identification', where the subject is asked to place herself or himself in one of a number of prescribed categories. Police recruits do this for 'ethnic monitoring' and, despite the potential difficulties and tensions, self-reporting is also utilized in the collection of stop and search data.

Table 2.1. Contrasting Ethnic/Racial Categories in the British Criminal Justice System

'Ethnic Appearance' Categories as used in Police National Computer (PNC) and Police National DNA Database (NDNAD)	16+1* (UK 2001 Census) Categories used by the government to describe the UK population. Also used within the criminal justice system to monitor the ethnic composition of, for example, the prison population, police service staff, and those formally stopped and searched by the police.
Afro-Caribbean **Arab** **Asian** **Dark Skinned European** **Oriental** **White Skinned European**	**Asian or Asian British** Indian Pakistani Bangladeshi Other Asian **Black or Black British** Caribbean African Other Black **Chinese or other ethnic group** Chinese Other ethnic group **Mixed** White and Black Caribbean White and Black African White and Asian Other Mixed **White** British Irish Other White

* The +1 refers to information refused.

I have discussed the operation of racialized categories and the use of racialized data in the criminal justice system in some detail because it frames the politics of racial categories and categorization and the NDNAD. Since 2006, privacy campaigners have used data on inequality of storage by ethnic group to highlight wider concerns about the operation and use of the database – that is, as evidence of the dangers of relying on and expanding the NDNAD in general (Anderson et al. 2009 for the Joseph Rowntree Reform Trust; Nuffield Council on Bioethics 2007). Some other groups also began to articulate concerns specific to ethnic minorities (Genewatch

UK, Black Mental Health, Liberty, the Liberal Democrats, the Commission for Racial Equality and the Equality and Human Rights Commission). These concerns were also expressed on occasion by members of the Labour government that presided over the growth of the NDNAD since 1997 (replaced by a Conservative and Liberal Democrat coalition in May 2010). During a parliamentary inquiry into 'Young Black People and the Criminal Justice System', Minister Baroness Scotland claimed that three-quarters of the young black male population would soon be on the DNA database:

> The implications of this development must be explored openly by the Government. It means that young black people who have committed no crime are far more likely to be on the database than young white people. It also means that young white criminals who have never been arrested are more likely to get away with crimes because they are not on the database. It is hard to see how either outcome can be justified on grounds of equality or of public confidence in the criminal justice system. (Quoted in House of Commons Home Affairs Select Committee 2008: 81)

Whatever the concerns raised about racism and the NDNAD, it is open to question whether the routine use of categories in other areas of social policy helps desensitize in respect of this kind of categorization. While there were a range of voices raising misgivings about unequal representation on the NDNAD, there was far more uncertainty as to the implications of the estimates. For example, some contrary voices suggest that the unfairness should be addressed by recording the DNA of all British citizens. In September 2007 the then President of the Black Police Association argued that the system was 'untenable' and mooted a universal system where samples of the DNA of all British people were stored. This reprised an argument previously made in the U.S.A. (where patterns of racial inequality are also evident in the composition of current forensic databases). Kaye and Smith use 'racial justice' to make the case for a universal database. They suggest that expanding the database to all arrestees would decrease disparities and also encourage more public and professional consideration of the use and abuse of the database: 'a population wide DNA database would serve as at least partial, much needed antidote for the racial distortions that plague the criminal justice systems. DNA evidence does not care about race' (Kaye and Smith 2004: 271).

A further complication to note is that although often quoted, the provenance and accuracy of estimates of unequal representation in the NDNAD is questionable. These estimates use data supplied by the U.K. Home Office in response to written parliamentary questions (e.g., *Hansard*, 13 December 2006) compared against 2001 census figures for the ethnic mix of the British population. The comparison methodology is limited – not least because of the different approaches to categorization used in the database and in the census, the increasing outdatedness of the snapshot of the U.K. population from the 2001 census given recent changes due to rapid inward migration and population growth, the complication that the database does not just hold the DNA of current U.K. residents and finally the debate as to whether minorities are more likely than average to feature among the replicate samples. Thus, even the racialization of DNA does not allow precision or accuracy in the calculation of levels of inequality. While there is a broadbrush indication that the system disadvantages black people, the detail of the estimates is open to question and may exaggerate the exact extent of the inequality or obscure important details of how it operates.

The issue of race inequality has been discussed in the new fora that have recently been established as (post hoc) attempts to provide more transparent and rigorous governance of the NDNAD. In the annual reports and meeting minutes of the NDNAD Strategy Board and Ethics Advisory Group we can trace ongoing discussion of the issue of the disproportionate number of black people on the database and the 'risk to public confidence' in the database that such disproportionally poses (numerous examples can be found in the Strategy Board minutes available at www.npia.police.uk/en/14189.htm). Since 2007 the NDNAD has been subject to a series of Equality Impact Assessments (EIAs) – a public sector practice designed to review whether policies unintentionally disadvantage particular groups. Problems of categorization and the limits of the current system as a way of monitoring policing practice are recurring themes. The Equalities Impact Assessments (National Police Improvement Agency 2007, 2009a, 2009b) recommend that DNA should be categorized using the 16+1 categories and self-identification in parallel with the use of the PNC categories. The EIAs also seeks racialized data on familial searching, deletions from the database, and replicates and records of those arrested but never charged.

As the reservations expressed in the EIA show, underlying the practice and debate of the DNA database are not just two systems of categories and categorization – one internal to policing and the other in the lingua franca of public policy – but two distinct motivations for the collection and use of racialized categories. The first of these is monitoring – that is, to measure the impact of a practice on particular groups as part of an equalities agenda and to highlight unfairness. The second is profiling – that is, to gain a better understanding of patterns of criminal behaviour. As the EIA points out, the current use of categories is far from a satisfactory monitoring tool (National Police Improvement Agency 2007: 8–9). In addition, if monitoring was the sole purpose, then race data could be taken and stored separately from genetic records.

The confusions and tensions between categories for profiling and monitoring are evident amongst opinion formers and campaigners who have focused on the racialization of the NDNAD. They express concern about both the disproportionate numbers of people from minorities whose DNA records are stored and the potential use of the database for 'ethnic profiling', but the implications for the use of categories are left open. Specifically, is the use of racial categories in this case a facilitator of or a protection against racism? Underlying the diffuse but nagging unease about race and the NDNAD are a number of different accounts of why racialization is a concern. Sometimes these are clearly defined, but often they are bundled together. However, Table 2.2 is an attempt to differentiate the range of positions (and their assumptions and implications) by outlining six ideal-type approaches to the 'problem' of the database. Tellingly, each approach models its stance on a pre-existing controversy and, as the table illustrates, can imply different positions on the collection and storage of DNA by race category.

Table 2.2. The 'Problem' of a Racialized NDNAD

The problem is …	It is like/ part of another probem of …	The collection of racialised data …
discrimination against minorities	abuse of police powers	allows us to see that young black men are targeted by the police
state power over the citizen	the database state	illustrates the potential in the database for unfairness to individuals and invasion of personal privacy
criminalisation of minorities	institutional racism	reveals the dynamics of a process whereby minority groups are placed under 'genetic surveillance'
negative stereotyping of minorities by associating them with criminality	previous controversies about the selective reporting of racialised crime statistics	itself contributes to stereotyping when put into the public domain
the use of samples for research into group differences and 'ethnic profiling'	scientific racism	allows profiling to take place
samples are put to secondary use, e.g. in research into group differences and ethnic profiling without permission of the donor	biomedical ethics	is problematic because donor has had no say in if/ how s/he is racialised or analysed

As Table 2.2 suggests, different ways of framing the NDNAD as a problem imply different approaches to the use of race categories. In some cases the use and discussion of data in racialized form is itself deemed problematic, while in others it allows for the monitoring of injustice in the operation of the database and the wider criminal justice system.

Whatever its merits, the collection and use of racialized monitoring data has happened alongside deepening race inequalities not just in the composition of the NDNAD but across the criminal justice system – for example, in the ethnic composition of the prison population. When data on, for example, the mass representation of young black men on the NDNAD is discussed, it is often in ways that avoid rather than address the fundamental dynamics underlying these inequalities and chiefly as part of a narrow discussion of the 'fair' administration of bureaucratic procedures. I have already discussed one dimension of this – a preoccupation with the limitations of the available data, the incommensurability of different official datasets and the inappropriateness of the current systems of categories and modes of categorization. In arenas such as the NDNAD Strategy Board and Ethics Advisory Group to date, consideration of inequality and systemic racism has largely been delayed in favour of discussions of the limitations of the current data (Ethics Group 2009). The call is for a consistent approach to categories across the criminal justice system (using the 16+1 schema) and for the use of self-identification as the standard means of classification.

Thus, discussion of the racialization of the database is often postponed in favour of a discussion of inconsistent categories. There is a related preoccupation with potential inaccuracies in the estimates of black representation on the database that circulate in public debate. A Working Group established in 2007 by the Strategy Board to 'take forward work on producing a more robust estimate of young black men on the NDNAD' is yet to reach any conclusions (National Police Improvement Agency 2009b: 10).

Alternatively, spokespeople for the government and the NPIA have sought to move the focus on the NDNAD to a wider discussion of statistics on race and the criminal justice system. See, for example, this paper exchange between the government and the House of Commons Home Affairs Select Committee when it reported on 'Young Black People and the Criminal Justice System' (2007):

> *Recommendation 66:* That the Government should conduct a study to determine the implications of the presence of such a high proportion of the black male population on the National DNA Database (para 319, Main Report; para 75, Conclusions and recommendations).
>
> *Response:* The Government agrees. It also states:
> '… while data suggests that any bias in proportionality reflected in the criminal justice system as a whole and not because of inherent bias in National DNA Database processes, we must ensure that this is the case.' (Secretary of State for Justice 2007: 40)

Once again, racialized data itself becomes the focus of discussion rather than the racism it reveals. While the NDNAD Strategy Board and Ethics Advisory Group seek consistency of categories, the Home Office and the NPIA seek consistency of unequal outcomes across policing, courts and prison data. This explains the importance attached to the comparison of the number of profiles on the NDNAD and racialized data on 'arrest events' as evidence that there is no 'bias' in the system (House of Commons Home Affairs Select Committee 2009: 83). A similar approach allows the portrayal of the database as a neutral component of the criminal justice system: 'The NDNAD has no ability in itself to be discriminatory as it is a repository for information supplied. Where there is disproportionate data, this is the result of criminal justice system and police processes that determine whose information is obtained for recording' (National Police Improvement Agency 2009b: 11).

This is, however, an approach that could be applied to any pressure point in the criminal justice system without allowing analysis of institutional racism. In particular, it allows little consideration of how collection of DNA is itself a driver of inequality across the criminal justice system by stigmatizing minorities, placing minorities under greater surveillance and deepening the implications of existing disproportionate use of police powers against minorities.

Discussion: Categories of Identity and Identification

The case of the NDNAD shows us that the development, use and contestation of formal systems of ethnic and racial categorization, and the ways in which these systems come up against, enrol and enrage the public are fruitful topics for analysis. Categorization tells us much about the context and consequences of new genetic accounts of human similarity and difference.

Crucial here are questions of when, how and why categories and conventions of categorization are established and maintained. Both genetics and race/ethnicity have global currency and local articulations. The case of the racialization of the NDNAD and the controversies it has prompted highlights the role of the nation state as a key frame for political debate. It reveals a politics of racialized knowledge that is inseparable from a wider, shifting constellation of representations, debates and policies about race, ethnicity and racism. The science of forensic testing, the management of databases and the notion that someone's ethnicity can be revealed genetically are transnational but the biopolitics, the approach to collection and use of racialized data, and the terms of controversy belong very much to a particular social and political setting – Britain at the start of the twenty-first century.

While this sphere of the new genetics may be more prone to prioritizing national variations over international considerations, other supposedly universal, transnational forms of genomic science also reach accommodations with national regimes of categorization by, for example, routinely using national census categories to explore group differences (Martin et al. 2007). This compromise between local, national and transnational factors is not without its problems. Thus, for example, Suarez-Kurtz (2005) reports how differences between 'white' and 'black' drug responses identified by U.S. researchers have no equivalent in Brazil. However, as Martin et al. (2007) show, there are compelling reasons for genetic researchers to persevere with census categories:

> The scientists who used the UK's 'official' classifications of race/ethnicity valued these because they were felt to have proven practicability and portability – i.e., they had political legitimacy; they were acceptable to the public; they were easy to use; they permitted comparisons between studies; and they facilitated the translation of research findings into clinical practice. (Martin et al. 2007: 6)

These priorities can seem troubling because they seem to confound any clear distinction between the biological and the social (Skinner 2007). But much contemporary research on race/ethnicity and genetics avoids or actively objects to assertions that there is a biological reality to race. This mix of 'socially constructed' categories and genetics is highly pertinent in the case of the NDNAD. The debates about categories and the database have a particular character and urgency because they centre on genetic data, yet DNA is implicated in the politics of race, racism and criminal justice without there being any necessary presumption that criminal behaviour has a genetic basis. As we have also seen, it is difficult to disentangle the collection and use of racialized data for operational or scientific purposes from the collection and use of racialized data for management and policy-making purposes: monitoring data is connected to profiling data and is by no means subservient to it.

Apparent slippages between discussion of race/ethnicity in social or biological terms are often characterized as the result of a lack of thought or care on the part of experts. Jonathan Kahn, for example, argues that in U.S. forensics, race categorization is deemed a common-sense process that requires no special expertise – 'race is seen as easy and obvious; DNA is seen as difficult and complex' (2009: 348). Others see in genetic research a process of bracketing off the complexities and contradictions of racial categorization – what Smart et al. (2008) in their discussion of biomedical genetics term an 'ostrich tendency'– being aware of the problems with categories but persisting in using them anyway (see also Fullwiley 2007). But this is only part of the story: the NDNAD example reveals a lively politics of knowledge preoccupied with the heterogeneous, plastic and provisional character of categories. This involves both life science and social science expertise at a variety of different levels from the collection and interpretation of samples through to the contestation of policy and practice. Rather than a lack of care, we can witness a difficult renegotiation of relationships between natural science and social science, and also of relationships between experts, 'the public' and policy makers. Expertise is required to align scientific and political projects, manage populations and enrol the public in knowledge production.

In practice, race categories can never be other than hybrid boundary objects encompassing or standing for a number of different qualities that defy easy distinctions between folk and expert, biology and society, science and policy, and the national and the universal. As such, they allow activity that spans the laboratory, the police station and the parliamentary committee. As I suggested at the start of the chapter, we can learn much by placing discussion of this issue in a wider analysis of information systems. Some of the disquiet over inconsistencies in the use of racial and ethnic categories seems misplaced since the problems highlighted are those endemic to the operation of categories in any large-scale information infrastructure. But while all systems must manage 'heterogeneous definitions and goals' (Bowker and Star 1999: 148) through the interplay of the vernacular and the formal, the practical politics of race categories are continually exposed. There are particular, recursive issues of stabilization and standardization. The work put into sustaining these systems remains more provisional and visible than in other cases. Race categories certainly have not achieved what Bowker and Star term 'infrastructural inversion' (34) – running so smoothly that they become invisible and unquestionable.

Yet, for all this, a discussion of 'race' can apparently take place despite the transparent artifice involved in sorting people into groups and the incommensurability of different systems of categories and categorization. In the biopolitics of racialized data, the messy, disputed present is often contrasted with an ideal of the eventual convergence and stabilization of race category systems. However, as the NDNAD case study shows, this endpoint is unlikely to be reached. We are likely to continue to see the coexistence of different systems and these systems will continue to be disputed and debated. Experts, policy makers and laypeople will continue to use categories while also doubting their validity and reliability. For all sides, categories can be at various points open to scrutiny or taken for granted, legitimate or illegitimate – at points categories matter or do not matter. But the supposed chronic 'problems' of race/ethnicity categories are integral to their operation.

As Tutton and Levitt rightly argue, while many accounts of the politics of the new genetics focus on the ways in which identities are freely expressed or reclaimed through DNA, consideration of forensic databases adds a different dimension to discussion of identification:

> If we think of this as a form of 'genetic citizenship' or 'biological citizenship' then it clearly has very different features than the celebrated cases of the self-organizing citizens who form support and advocacy organizations, for whom biological knowledge is a source of their self-identification. This is not about self-definition but definition by the state; a social sorting into the suspect and non-suspect for the operational purposes of policing. (2009: 14)

Tutton and Levitt connect the collection of forensic DNA to the control and management of populations. Citizenship here is about identification by (or the obligation to identify oneself to) the state. The 'donors' of DNA in this case have a different relationship to their samples, records and the categories in which they are placed than, for example, donors to medical biobanks or users of genetic ancestry testing services. Forensic DNA samples are typically taken and used without the conventions, permissions and safeguards that surround other forms of donation. The U.K. is one of a number of European jurisdictions to stipulate that donor permission is not required when taking samples from people convicted or suspected of a crime. Other countries (such as Belgium, Cyprus, Germany, the Republic of Ireland, Portugal and Spain) do claim some form of informed consent is needed for samples to be collected, but it is open to question how 'informed' or 'voluntary' consent can be in these circumstances (Machado and Silva 2009: 337).

The distinction between freely giving consenting DNA and having no choice but to provide it is important. In this area, however, even 'volunteering' DNA is not without constraint or compulsion. In September 2009 the UK Border Agency announced a pilot scheme to use genetic testing and isotope analysis to confirm the origins of people claiming political asylum. The systematic taking of samples of the tissue of people seeking the right of settlement in the country clearly took notions of biocitizenship in new directions and immediately provoked a hostile political and scientific response. But we should also acknowledge that a far more established and commonplace practice is for applicants for residence (often following legal advice) to 'choose' to send their DNA to commercial ancestry and/or paternity testing services to support their identity and relationship claims.

Similar ambiguities lurk in the discussion of how DNA is racialized. For some critics of the NDNAD, the current arrangement of police officers deciding in which ethnic category to place a donor's sample is taken as primary evidence of the ways in which the system bears down on the individual. A move to the 16+1 categories and self-identification is seen as providing greater reliability (by allowing comparison with other racialized datasets), greater validity (as more meaningful measure of ethnicity) and is deemed intrinsically more ethical. It is, however, open to question whether giving donors the right (or obligation) to categorize themselves equates with a lack of constraint. Any move by those managing the database towards self-identification will, on its own, do nothing to tackle the structural inequalities in its operation.

There is a general point here. Self-identification seems a poor substitute for voluntary donation and/or rights over the way in which our data is used once it is on the database. Self-identification categories suggest a benign version of biocitizenship in which identities are freely expressed or reclaimed. However, this does not adequately consider the extent to which lay understandings and categorizations are themselves constrained and managed. Categories do not just reflect existing identities, they reproduce and reinforce them. When categories and categorization have become part of mundane organizational practice and everyday experience, as they have in contemporary Britain, people may have little choice but to choose to place themselves in a category. The messy, micro and expressive dimensions of categorization facilitate rather than frustrate the management of information and people. As Star wrote early in her exploration of information systems, 'the contingencies of action always shape even the most abstractly represented tasks' but also 'tasks that appear to be the product of individual minds are in fact distributed and collective' (Star 1992: 396).

For some of its supporters, a move towards self-identification places race/ethnicity firmly in the social realm and removes any links between genetics and race. But here too there is a paradox. The self-identification technique of racial and ethnic classification is now common across the new genomics, notably amongst medical researchers and pharmacogeneticists who consider racial groups to have distinct, genetically-based characteristics. This move to self-identification is driven in part by the evident unreliability of other techniques of categorization. As some forensic researchers have already argued, citizens' self-identification may be a better guide to 'true genetic ancestry' than the classificatory judgments of police officers (Lowe et al. 2001).

Identity is a continually ambiguous term used to make sense of external labelling and subjective experience, and a sense of social location plays a pivotal role in the biopolitics of race and genetics (Skinner 2006). These ambiguities can make 'identity' a powerful tool to reconcile (apparently plastic) personal biographies and (apparently fixed) official and scientific categories of group difference. Changing political priorities mean that for the state, self-identification is not only a means to assemble racialized data but often the primary research objective (Tutton 2007). In a situation where the recursive problems of information systems cannot just be confined to the technical realm, 'identity' also becomes a way of glossing the contradictions of (and managing the politics of) racialized data.

The NDNAD is a case in which the classification of DNA by race features in ways that seem to confound simple positions for or against racialization. Neither a refusal to collect racialized data nor the existence of that data seems on their own to address the normalized, systemic racism at the heart of the system. Certainly, the rights to the expression of cultural identity and to bureaucratic transparency seem easier concessions for the state to grant than the right to equal treatment by the criminal justice system.

Also of significance here are the roles that the discussion of racialized data and the inevitable accompanying discussion of the limitations of categories and categorization play in politics and policy making. Despite awareness of patterns of racial/ethnic membership of the NDNAD, discussion of racialized official data can also allow race inequality and racism to be hidden in plain sight. There is merit in borrowing here from David Gillborn's analysis of racism in the British education system (2008). Gillborn has very effectively considered how and why government and other public institutions collect and use racialized data for reasons other than a commitment to combat racism. He convincingly argues that the collection and use of data on educational attainment can obscure rather than reveal the realities of continuing structured racial disadvantage. For example, he critiques the preoccupation of academics and policy makers with differences in aggregate educational performance between various minority groups and small changes over time between groups in their educational outcomes. This 'gap talk' 'fails to recognise the scale of the present inequality and how relatively insignificant the fluctuations are' (2008: 65). Gillborn argues that this approach allows business as usual within the educational system and precludes consideration of historically institutionalized inequalities. At the very least, this analysis might lead us to ask what does racial/ethnic monitoring of the collection and use of forensic DNA records achieve? Is this about the elimination of what Gillborn (2008: 64), using Roithmayr's phrase, terms 'locked-in inequality' or the management or justification of that inequality?

Notes

1. I would like to thank Adam Bostanci, Greg Elmer, Stephan Feuchtwang, Richard Rottenburg, Vincenzo Scalia, Katharina Schramm, Julia Selman-Ayetey and an anonymous reader for their comments on an earlier version of this chapter. I would also like to acknowledge the work of Julia Bailey whose contribution to the policy research discussed in this chapter was funded by the Anglia Ruskin University Undergraduate Researcher Scheme.
2. Interesting in this respect is the Innocence Project (www.innocenceproject.org), a non-profit legal organization in the U.S.A. dedicated to exonerating wrongly convicted people through the use of DNA evidence. The Innocence Project has, however, also highlighted miscarriages of justice based on 'unvalidated or improper forensic science'.
3. Established in 1998, the FBI's Combined DNA Index System (CORDIS) competes for the title of the largest database. However, the NDNAD undoubtedly covers the largest proportion of its population of any national forensic database.
4. The campaigning group NO2ID is in terms of membership and active support probably the most successful new social movement in the U.K. in recent times.
5. As Lazer (2004) outlines, U.S. forensic DNA databases are growing rapidly. The criteria for taking and storage of DNA varies between states (Lazer and Meyer 2004), but many now keep DNA records of people arrested and not just convicted of felonies.
6. That they consistently fail to meet.

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3

Race, Kinship and the Ambivalence of Identity

Peter Wade

Introduction

In this chapter I explore the changing connections between 'race' and 'kinship'.[1] Both are realms in which identities, individual and collective, are constituted. Both are realms where ideas about genetics (and 'blood') have been and continue to be central. I argue that a key relationship between race and kinship, evident especially but not only in the Western world, is based on what I call race-kinship congruity. This is the idea that people who are related by consanguineous kinship should also have a 'racial' appearance that is congruent with – explicable in terms of – their kinship connections. The idea is based on longstanding notions of shared 'substance' (blood, genes) that are common to racialized and kinship thinking in many areas of the world. Race-kinship congruity has recently been unsettled by new technologies of reproduction, including the biotechnology of assisted reproduction and the bureaucratic technology of transnational adoption: both have the potential to undo the assumption that the 'substances' underlying racialized appearance and kinship should flow in parallel along genealogical routes. But, I argue, this unsettling does not have predictable or unidirectional consequences: the way is opened both for more deterministic reckonings of identity, based on simple notions of biology and genes, and for more flexible reckonings of identity, themselves deriving in part from the unsettling of the meaning of 'biology' and 'genes'.

Race-kinship congruity has been a variable construct, historically and geographically; it has offered different possibilities for thinking about human relatedness and racial identity. While new technologies of reproduction tend to focus attention on genetic connections, they represent a new assemblage which reshapes existing ideas about race and kinship, rather than a radical departure from them. While it is legitimate to say that we have entered an era of biologization, geneticization, biosociality and biological citizenship (Franklin 2001; Gibel Azoulay 2006; Lippman 1991; Rabinow 1992; Rose 2007), and perhaps also to fear that this leads to greater biological determinism in reckoning kinship, race, identity and personhood (Lippman 1991; Nelkin and Lindee 1995), it is also helpful to mark the continuities with previous modes of thinking and to recognize the persistent coexistence of determinist with less determinist modes of thinking.

People appropriate and deploy scientific knowledge in varied ways that are more and less deterministic. Biology, while being subject to representation as the underlying key to everything, is now also potentially understandable as less determinate and more 'cultural', due precisely to the technological manipulations to which it is subject and to the increasing perception, by Western publics at least, that science is not outside society (Franklin 2000, 2003; Pálsson 2008; Strathern 1992; Wade 2002, 2007).

Race and Kinship

Racial thinking is based on a complex and shifting set of ideas about certain aspects of physical appearance, linked to descent and the inheritance of 'natural' and 'cultural' traits. These ideas have developed within a specific history of originally European and then global colonialism – as opposed to the ideas being simply one mode among a universal set of human ways of thinking about difference. Racial thinking is thinking about appearance, inherited substance and behaviour in relation to specific categories which emerge out of colonialism. Racial categories are the product of historical, political and economic contexts – they are social constructs in the usual terminology. These categories have shown remarkable historical resilience and, with multiple variations, have divided people into a small number of groups – roughly, Africans, Europeans, Native Americans, Asians and perhaps Australasians. Perhaps not surprisingly, the categories correspond broadly to the division (originally by Europeans) of the world into continents. When I talk about race, I refer to this complex of ideas and categories. I am talking about ideas about human difference, not about 'real' biological differences, although I am aware that recent debates in genomics and human variation have re-awakened the idea that continental geography corresponds to human genetic variation in ways that some refer to as 'racial' (see Koenig, Lee and Richardson 2008).

Racial thinking has strong links to Euro-American (and probably other) styles of thinking about kinship that are based on notions of 'blood' and the transmission of 'natural' and 'cultural' traits. If the key (although not the only) mode of establishing kinship connections is thought to be via substances, such as blood, passed on through sexual reproduction, then it is clear that race, as defined above, is deeply implicated in kinship and vice versa (Haraway 1997: 309, n. 1; Nelson 2008; Palmié 2007; Williams 1995). Kinship is important in order to understand race because racial identities imply notions of inheritance, both 'natural' and 'cultural', for which the most crucial means of transmission is the family, at least in Euro-American kinship (Wade 2002: Chapter 4).

In explaining mechanisms of heredity, Aristotle said that 'in nature, like produces like'. This underlying principle of continuity, which linked appearance (but also character) to sexual reproduction and kinship, was, for Aristotle, patrilineal and connected father to child. It could be modified by other factors (maternal blood in the womb, diet, climate), which also impinged on the process of (re)production and explained why a child was not identical to his or her father (Wade 2002: 47). The basic idea that offspring should resemble their parents, while they may also differ from them, has been extremely durable in Western culture (Strathern 1992: 11–30) and indeed more widely (Astuti, Solomon and Carey 2004). Indeed, Herzfeld's comment that 'the idea that physical resemblance (the semiotic property of iconicity) reveals the presence of common blood predated the popularization of DNA-based metaphors and is likely to have facilitated that process' (2007: 319) barely hints at the historical depth of this idea.

In Latin America, the concept is recognized in such sayings as '*de tal palo, tal astilla*' (from such a tree, such a splinter) and '*hijo de tigre sale pintado*' (the son of a tiger comes out striped). In English, it is revealed in the phrase 'like father, like son' and in reference to a child as 'a chip off the old block'. The simplicity of such stock phrases hides the coexistence of both similarity and difference. No child looks exactly like a parent, so particular perceived resemblances are picked out in order to build relationships and for strategic purposes (Marre and Bestard 2009).

These ideas about family resemblance are independent of race, but when race is a factor in reckoning identity for a person and assigning value in a society, kinship can become racialized. This is especially the case when sexual relationships are mediated by racial hierarchy, as they have been all over the Americas (Hodes 1999; Wade 2009) and elsewhere, such that sexual reproduction that crosses the racial boundaries of a given society becomes highly charged with meanings. People then become very interested in the racialized appearance of a child in relation to its parents. The underlying assumption is that the racialized phenotype of the child can ultimately be explained by its parentage – i.e., race-kinship congruity. But the same parents can give birth to siblings who are quite varied in terms of racialized appearance, so this is not a mechanical process of reckoning.

In addition, the link between appearance and social identity is a profoundly cultural and historical one. Fields, for example, comments on 'the well-known anomaly of American racial convention that considers a white woman capable of giving birth to a black child but denies that a black woman can give birth to a white child' (Fields 1982: 149). For reasons linked to the particular character of the North American colonial system and the subsequent emergence of the U.S. nation, children who are the product of unions between parents assigned to different 'races' are allocated to the subordinate racial category. This creates a clear boundary between 'black' and 'white' and maintains a system of race-kinship congruity in which it is deemed 'that "black" people ought to have "black" ancestors and "white" people have "white" ones' (Palmié 2007: 213). This is a version of race-kinship congruity that assumes strict lineality.

In Latin America 'mixed-race' people are not necessarily assigned to the racial class of the socially subordinate parent: mixedness, or being *mestizo*, is a recognized or even predominant identity. Race-kinship congruity takes a more flexible form in that a straightforward continuity of racial identity between parents and child is not assumed. While two parents who are 'black' (whether by self-identification or ascribed identity) would expect and be expected to have a child that is also 'black', parents who are '*mestizo*' by some reckoning (and there are lots of possibilities of identity and appearance within that broad category) could give birth to children who looked more or less '*moreno*' (brown) or '*claro*' (light) or, to use the Mexican term, '*güero*' (white, blond). Within a sibling set, one child might be the '*negro*' (black) or '*moreno*' of the family and another the '*blanco*'. In Colombia I found that a darker skinned child might be nicknamed '*el negro*': children of different families with this same nickname might look very different from each other, but they were all the darker skinned child of the family (Wade 1993). Differences in skin tone and racialized appearance make marked differences to how people feel they were treated in their families, as Moreno Figueroa (2008) shows in detail for Mexican women.

Within this variability, race-kinship congruity operates in a specific way: the racialized appearance of children, while variable, is still held to be explicable in terms of a child's immediate parentage and its deeper genealogy. People are highly sensitive to racialized ancestry as perceived in appearance. Relatives of a newborn are interested to see *cómo salió el bebé* (how did the baby come out; i.e., what it looked like in racial terms, especially how dark- or light-skinned it was). In Hispanic America the well-known phrase '*¿y tu abuela dónde está?*' ('And your grandmother, where is she?') is used to deflate the pretensions of a person whose appearance is perceived (to the local eye) to indicate some indigenous or black ancestry, yet who is denying such ancestry or perhaps deriding indigenous or black people. Interestingly, as in the U.S. case, it is the (grand)mother who is seen to pass on the traces of blackness or indigeneity. This gestures to the common American theme of sexual relations (or abuses) occurring, or having occurred in the past, most commonly between white men and black or indigenous women. Race-kinship congruity in the Americas has regional variants – more and less deterministic – which share common traits.

Changing Connections between Race and Kinship

The changing terrain of connections between race and kinship demonstrates that race-kinship congruity is not an ahistorical construct but varies according to context, as we have already seen for different regional contexts in the Americas.

In the late nineteenth century, when race was defined by European and North American scientists in terms of biological 'types', there was a strict relationship between race and kinship. For this era, Banton (1987) identifies a shift away from older notions of race as lineage, when a racial group was conceived as the descendants of a founding ancestor, who may have been phenotypically varied. The key idea was common ancestry. By the nineteenth century, says Banton, concepts of race had shifted towards the idea of racial type, in which certain aspects of physical appearance and other biological characteristics were the key. Yet there is a clear continuity across this shift in the sense that these racialized phenotypical features were seen as being transmitted through descent, albeit that, by the very late nineteenth century, descent itself was beginning to be seen in more limited biological terms of a 'germ plasm', a determining essence transmitted by sexual reproduction (Wade 2002: 59). Still, descent could be deduced from appearance; phenotype was a clue to inherited racial essence.

Racial type entailed ideals of purity. Individuals of a given 'race' should intermarry and procreate with others of their type. Some scientists at this time treated racial type as equivalent to biological species, despite abundant evidence that interracial sex produced fertile offspring. Sidestepping this evidence, it was said that 'miscegenation' in the long run led to degeneration and weakness. In terms of kinship, then, families of one racial type should produce offspring of the same racial type. Race-kinship congruity was a strict norm and was understood in terms of the boundaries established by the concept of racial type. Eugenic policies could improve racial type by encouraging beneficial matches (and hygienic environments), but mate selection should operate within the boundaries of racial type (Kevles 1995). Departure from this congruity of race and kinship – resulting in 'mixed-race' individuals – provoked moral disapprobation and anxiety (Stoler 1992).

The historically specific character of constructs of race-kinship congruity is revealed in Stoler's work. She shows how in the Dutch East Indies colonial administrators and governors were concerned not just with sexual relations between whites and natives, which they saw as contaminating for the whites and productive of problematic offspring, but also with other relations of intimacy, such as white children's native nursemaids, who might also breastfeed their mistresses' babies. The quasifamilial closeness of the native women and the ingestion of their milk by white children were seen as potentially threatening and contaminating. 'Mixture' could occur through other channels than sex. Kinship embraced varied forms of substantial connectedness (Carsten 2001) and race-kinship congruity thus involved policing several dimensions of 'cultural intimacy' (Herzfeld 2007). In short, there were a number of modes of reckoning race through kinship. In Lamarckian style, biology itself was shaped, in part, by behaviour (by leading morally 'proper' lives, white people could pass on physical purity to their children) and this gave a less deterministic quality to biology than we might assume from our current perspective.

In Latin America in the same period, race-kinship congruity took a particular form. Elites generally practised a close correspondence between race and kinship, maintaining their own purity, as they had long done. Yet ideas about race, purveyed by intellectuals in the context of pondering on the fate of the nation, tended to avoid the biological determinism of scientific racism and ventured into a more cultural conception of race, developing the Lamarckian tendencies that also existed in Euro-American science (Stepan 1991). Perceived differences within national populations – between indigenous, white, black and mixed people – might be talked about in terms of culture, 'spirit', 'soul', history and tradition (De la Cadena 2000). Faced with the undeniably mixed character of their national populations, these intellectuals tried to dissociate kinship from race by talking about the latter in terms of cultural heritage. Their nations' departures from the scientific racial norm of race-kinship congruity could thus be cast in a more benign light. However, 'culture' in this idiom could retain a quasi-natural aspect, especially when phrased as a 'spirit' or 'soul' that was seen as virtually innate.

Nevertheless, race and kinship remained closely linked. In Mexico and some Andean countries, national icons were made of the figure of the *mestizo* or the *cholo* or *chola* (a term indicating a person of indigenous and European descent). The kinship that nationalism so frequently invokes as a unifying trope was phrased in terms of racial mixture (Appelbaum, Macpherson and Rosemblatt 2003). Meanwhile, as Caulfield (2000) shows for early twentieth-century Brazil, the 'honour' of white women was in practice protected by white men (for example, in the courts), who were hostile to the fracturing of a straightforward version of race-kinship congruity that race mixture threatened.

During the twentieth century, and especially after the Second World War, this Latin American move away from understanding race as a biological reality towards seeing it as a cultural reality became standard, in the West at least. Overt reference to biology and even to the term 'race', which carried connotations of previous scientific racial typologies, tended to be replaced by reference to 'ethnicity' and cultural difference – although, in fact, the concept of race retained a significant place in the life sciences as a description of human biological variation (Lieberman and Reynolds 1996; Reardon 2005: Chapter 2). Meanwhile, culture could become quasi-naturalized and essentialist and could still be deployed to discriminate against the same populations once defined in biologically racial terms (Balibar 1991; Gilroy 1987; Stolcke 1995). In this shift towards 'cultural racism', the congruence of race and kinship has apparently been undone. If difference and belonging are to be defined in terms of cultural features, then it should not matter what one's procreative partner or one's offspring look like 'racially' or where that appearance derives from in terms of ideas about ancestry. Yet it is readily evident that such things continue to matter to many people. Ideas about 'racial' ancestry and appearance – and the way these are conjugated in relations of kinship and family – continue to be very important, as many 'mixed-race' people attest (Olumide 2002; Parker and Song 2001).

In addition, culture cannot be separated so easily from ideas about biology or, more generally, 'human nature' (a phrase which nicely equivocates between the biological and the cultural). Concepts of race have never been only about biology, least of all during the era of scientific racism. If, in the eighteenth century, Linnaeus produced descriptions of races that indiscriminately included what we would now call biological and cultural features (Wade 2002: 55), it is also true that in the late nineteenth-century era of anthropometrical descriptions of racial types, there was much attention paid to the moral qualities of the 'races'. During the twentieth century, biology and culture became increasingly separated as analytic concepts, as anthropologists and others began to challenge scientific racism and its biological determinism, and to see human biological difference as relatively unimportant compared to cultural differences. Yet biology and culture continue to be entangled in everyday life, in large part through the medium of the family, where biological and cultural connections are forged together and where distinctions between what a person is through birth and what he or she is through upbringing become blurred (Edwards 2000). As Hall says of the current concepts of ethnicity which are apparently only about 'culture', the 'articulation of difference with Nature (biology and the genetic) is present, but displaced *though kinship and intermarriage*' (2000: 223, emphasis in original).

In the last few decades, 'nature', 'biology' and 'kinship' have all been undergoing changes, prompted by biotechnological advances in the fields of genetics and assisted reproduction, and new forms of family arrangements such as transnational adoption and gay and lesbian families.[2] This raises the question of whether patterns of race-kinship congruity change as a result. The impact of DNA sequencing on scientific and popular concepts of race (and on the relationship between scientific and lay concepts) has been hotly debated (Brodwin 2002; Koenig, Lee and Richardson 2008; Pálsson 2007: Chapter 7) and there is uncertainty about the long-term effects of genomic technologies. When we come to look at other technologies – assisted conception and transnational adoption – the same uncertainty prevails. There seem to be ways in which these new modes of kinship reckoning serve as arenas in which existing popular ideas about race are not only reiterated but also renaturalized, and in which these ideas about race shape and constrain kinship connections. But there also seem to be ways in which existing ideas about race are challenged, destabilized and even denaturalized, and in which ideas about kinship are also reshaped.

Assisted Reproductive Technologies (ARTs)

Much of the data on social contexts in which ideas about race intersect with practices of assisted conception seems to show that the underlying logic of race-kinship congruity is reinforced in these contexts. Thompson (2003) notes generally that 'phenotypic and other descriptors of race and ethnicity are one of the few things that form a common differentiating, kinship-conferring and legitimising organisational principle for the world's egg, sperm and embryo markets'. Campbell (2007) found evidence of donor-recipient matching practices for assisted conception in Spain, the U.K. and Norway, which used commonsense categories of race as a criterion.

In Spain, for example, the phenotypes of egg donors and receivers are classified and matched in terms of skin colour, eye colour, facial features, hair colour and texture, body size and blood group (Bestard 2002). This is to accord with Spanish law (Law 35/1988, Article 6, paragraph 5), which states that 'Donors should have the maximum phenotypic and immunological similarities and the maximum possibilities of compatibility with the receiver and her family environment' (cited in Bestard 2002). For at least some time, the IVF clinic under study by Bestard and his colleagues used a commonsense threefold racial classification of black, white and yellow, although this was adapted as demand grew. National legislation in Spain establishes the data that are to be collected on donors and users of ARTs, and these include physical data such as skin colour (pale or brown) and 'race'.[3]

In the U.K. too, racial matching was for a time officially advised, although the language used slipped between 'ethnicity' and 'race'. In October 2002 the Human Fertilisation and Embryology Authority (HFEA) amended section 3.18 of the fifth edition of its Code of Practice to read as follows:

> Where treatment is provided for a man and woman together, centres should strive as far as possible to match the physical characteristics and ethnic background of the donor [of gametes] to those of the infertile partner (or in the case of embryo donation, to both partners) unless there are good reasons for departing from this … For example, those seeking treatment should not be treated with gametes provided by a donor of a different racial origin unless there are compelling reasons for doing so.[4]

In the sixth edition of the Code (2003), the word 'racial' was dropped, while in the seventh edition (2007), all reference to ethnicity and race was removed, leaving an injunction to avoid any harm, 'physical, psychological or medical', to either the recipient or child.[5] These changes suggest a desire to publicly avoid policies that might smack of eugenics. Nevertheless, donors are advised that the information form they are required to fill in may ask for their 'ethnic group' as well as their 'physical characteristics'.[6]

This uneven tendency to match reproducers with gamete donors according to perceived or self-identified racial categories is not always the case. Sometimes, there are clear strategies of whitening involved, which suggest a desire to transform racialized identities towards an aesthetic norm of whiteness, as in longstanding practices of 'passing' in the U.S.A. and whitening in Latin America. Nahman's study of an Israeli IVF clinic shows that female clients often expressed a preference for light-skinned egg donors and ones without physical traits thought to be 'too Jewish' (Nahman 2006). This contrasts only in part with Kahn's (2000: 133) finding that the ideal egg donor was thought to be an unmarried Jewish woman. Teman found that some Israeli couples using surrogate mothers voiced doubts about dark-skinned surrogates who, they feared, might physically darken the baby in the process of gestation (Teman 2000; Wade 2002: 106–7). In the U.K. too, clinics reported in 2003 that some Asian and Middle Eastern women, whether living in or visiting the U.K., requested eggs from 'white' women and were able to receive them, despite the HFEA's guideline at the time that a 'compelling reason' was needed to depart from ethnic matching (*Sunday Times*, 16 November 2003: 7). In such cases, couples can have a child that might, from an abstract, objective perspective, be classified as 'mixed race', without there being a 'mixed race' sexual or social relationship between the parents. It is also worth noting that these women requested white women's eggs, whereas the same effect – from a mathematical point of view – could be achieved by requesting white men's sperm. Gendered aspects of ART usage – linked to ideas about the need for secure paternity – doubtless cross-cut calculations about racialized appearance.[7]

Both racial matching and racial whitening (or purposive mismatching) occur: there is not 'a consistent or paradigmatic operation for understanding contemporary racialisation in the context of assisted conception' (Wiegman 2003: 315). Instead there appears to be a process of what Thompson (2005: 145) calls 'strategic naturalisation' (and, I would add, strategic culturalization) as people seek to build their own networks of kin and narratives about family and kin. This leads to uneven effects. On the one hand, notions of strict race-kinship congruity appear in almost nineteenth-century form, requiring generational continuity of racial identity between parents and children. This is often phrased in terms of avoiding harm to the child: the assumption is that 'racial mismatching' within the family could lead to trauma. On the other hand, people are disrupting such strict genealogical lineality with a consumerist logic of individual choice (Faubion and Hamilton 2007). Race-kinship congruity appears in much more flexible – one might say Latin American – form, with a family containing people of varying racialized appearance. Even the underlying principle of race-kinship congruity is unsettled to some extent, because the racialized appearance of the child is, potentially, not readily explicable in terms of its assumed parentage – two dark-skinned parents may have a light-skinned child – although it is always possible to make recourse to ideas about the unexpected ways children come out. Of course, even these disruptions of congruity end up reinforcing racial hierarchies, as they reiterate the value of whiteness. As Herzfeld (2007: 316) says, 'kinship around the world remains entangled with the aftershocks of colonialism'. If white parents were to request gametes from black donors, that would be a different matter …

Such eventualities do occur, but they tend to be seen as cases of IVF that 'go wrong'. They also reveal the unpredictable effects of ARTs on notions of kinship and race. Tyler looks at an IVF mixup that resulted in 'black' twins being born to a white mother in July 2002 in the U.K. In this case the mixup was due to a black man's sperm being mistakenly used to fertilize the white woman's ovum (Tyler 2007). Newspaper coverage of the event was ambivalent. Some papers emphasized the 'shock' and 'horror' of the mixup and one expert was cited to the effect that the mother might have a case for suing the National Health Service for negligence and 'battery' (i.e., an assault against her bodily integrity). Here the disjuncture between the racial identities of the mother and the children (identified as black, even though they could have been seen as 'mixed race') was emphasized in ways that obeyed a strictly lineal logic of race-kinship congruity. Other papers sympathized with the white mother's reported attachment to the two babies that she had nurtured in her womb, also citing the fact that the legal mother is the woman who actually gives birth to a child. (This was before it had been established that the children had a genetic connection to the mother.) In this case the difference in racial identity was not seen as a block to creating some kind of family feeling, although this was always tempered by phrases to the effect that the mother loved the babies 'even though' they were black. In the end, the legal process decided that the legal mother was the white woman and the legal father was the black man. However, it was recommended that the white woman's husband adopt the children and become the legal father. In the end, then, race-kinship congruity was fractured by the white woman's genetic and gestational connection with the children: two white parents ended up with 'black' or perhaps 'mixed race' children.

Tyler also collected data on the reactions to the mixup by local people in the city where she was doing fieldwork. She found that several of them – Asians, white British and mixed-race individuals – made recourse to ideas about 'throwbacks' and about how light-skinned parents could give birth to unexpectedly dark-skinned children.

This reaction shows people stretching the logic of race-kinship congruity to explain unexpected occurrences by reaching further up the putative genealogical tree for (hidden) evidence of blackness, but still explaining racialized appearance in terms of descent, and then using that logic to think about (if not explain) 'accidents' produced by new biotechnologies of reproduction which create very different modes of descent.

Transnational Adoption

In the U.K. and the U.S.A., at least, ethnic and racial matching in adoption has been the de facto if not the de jure position (Hollingsworth 1998; Macey 1995; Swize 2002).[8] The arguments defending this position usually cite the 'best interests of the child', asserting that nonwhite children (including those defined as 'mixed race' or 'dual heritage') need a nonwhite family environment in order to cope successfully with a society such as the U.K., where racism is a problem. Twine found that many black people in the U.K. city of Leicester basically agreed with this position, arguing that black mothers empathized better with their black or mixed-race children than white mothers who had mixed-race children (Twine 2000).

Transnational adoption tends to break with this convention. A fast-growing trend, especially in the last three decades, the procedure generally places children from Asia (e.g., China and Korea) and Latin America into European and U.S. households. Such placements usually create a family which is 'transracial' in some sense. In the 1990s Russia and Eastern European countries emerged as major places of origin for international adoptees (Marre 2007; Selman 2002), creating families which are not usually 'transracial'.

Transnational adoption that places nonwhite children with white parents breaks with the logic of race-kinship congruity: two white parents have a child that is nonwhite. Mixed-race unions challenge a strictly lineal version of race-kinship congruity, but they do so in predictable ways that reinforce the basic principle: the children are seen as having something – indeed, an equal share – from each parent inside them, in accordance with Western logics of cognatic kinship (Porqueres i Gené 2001, 2007; Schneider 1980). The children's racialized appearance still makes sense in terms of their parentage, even if they are often classified as 'black' in societies such as the U.K. and the U.S.A., thus creating a rupture between the social identity of the children and that of the nonblack parent (a rupture that is being challenged by the growing mixed-race movements in the U.K. and the U.S.A.). Transnational adoptive families create a still more challenging scenario.

Howell's work on transnational adoption in Norway shows how adoptive families deal with this. On the one hand, the word 'race' and issues of racialized physical appearance and difference of origins are not mentioned: families work hard, through a process of 'kinning', to assimilate the children and turn them into fully-fledged Norwegians who speak and act like Norwegians (Howell 2001). Howell argues that the children undergo a process of 'transubstantiation' in which their inner essence is changed, while only their appearance remains, which is often hardly commented on. 'Unlike transformation, which changes the form as well as possible content, transubstantiation effects a fundamental change while the appearance remains simultaneously unaltered. In the case of transnationally adopted children, their incorporation into their parents' kin transcends the constraints of the blood tie, while the outward appearance remains unchanged' (Howell 2003: 470). Any reference to race is denied within the family, as it is in general in Norwegian society, where reference is made to, for example, the 'cultural differences' of nonwhite immigrants, although some recognition is given to the existence of racism (Howell and Melhuus 2007). In adoptive families too, cultural change is seen as crucial. The apparent break with the logic of race-kinship congruity is denied, in some sense, by silencing race (understood as the clues physical appearance is seen to give about origin and possible character), privileging culture and making the latter congruent with kinship.

Attitudes towards these adoptive children are rather different from those towards immigrants and their children (even the Norwegian-born ones) (Howell and Melhuus 2007). These are seen as culturally different, but race-kinship congruity works in a different way here, as the condition of immigrant is inherited by 'second-generation immigrants' and, despite evident cultural transformation for the locally-born children of immigrants, these children are seen as being like their parents in the key sense of not being properly and fully Norwegian. Culture is thus naturalized and, I would say, racialized.

On the other hand, the physical difference of the adoptive children from their parents, and everything this might suggest in terms of the absence of 'real' kinship, remains ineradicable at some level and is reflected in parents' concern with the 'original culture' of their adoptive children (Volkman 2005). Children are seen as arriving with a 'backpack' of genes and experiences (Howell 2003: 477), and parents strive to deal with this baggage. 'Adoptive families gather at annual social get-togethers of the India Association, the Columbia [sic] Association, and so on. They eat food and decorate the venue with artefacts from the children's country of origin; they may also dress the children in costumes from their birth country' (Howell 2003: 473). Parents may also undertake 'motherland' or 'roots' tours, travelling with their children to the country of origin so that the children have some sense of their dual sources of identity. Howell argues that these tours ultimately confirm the children's sense of identity as Norwegians, as they identify more with Norway than with their country of origin.

Yet these practices also implicitly recognize racial difference, albeit naturalized as cultural difference. These children are adopted as small infants, so their 'cultural background' in some sense is extremely shallow and thin, yet their racialized difference is being acknowledged by referring to 'cultural origins' in ways that suggest that culture is inherited with the genes. Marre also found this phenomenon among Spanish transnational adoptive parents. She cites one mother, featured in a 2003 Spanish television documentary, who wanted her Chinese child, adopted soon after birth, 'to learn her [the child's] language and maintain her culture' (Marre 2007: 73). Here, then, the logic of race-kinship congruity is reappearing in a more traditional form: at one level, these children are in effect seen as dual heritage. They have 'a bit of both sides' in them – as do all children in cognatic kinship systems. This duality is not easily conceived in terms of the mere biology of appearance (Chinese) versus the deep formations of culture (Norwegian or Spanish), because the 'mere' biology is perceived – as always in racial discourse – to suggest some cultural connection. At the very least, children have to understand why they look the way they do and that knowledge, it seems, is insufficient if phrased simply in terms of biology; it has to be culturalized through dressing up in national costume, eating national food and visiting one's national roots. This seems to be motivated by the idea that adopted children should come to terms with their origins and understand themselves as persons, rather than by a desire to strengthen a child's self-esteem in the face of racism: Howell (2003) does not mention this as a motive. Parents do not generally see racism as a threat to their adopted children as such, although there are some fears that they might be mistaken for immigrants and suffer racism by accident, as it were (Howell and Melhuus 2007: 64). This indicates that parents recognize the possibility that racial difference enters into the heart of their families. But, above all, these practices of recognizing the differences that are indexed by ineradicable racialized physical difference are related to the parents' ways of coping with a race-kinship incongruity that profoundly intensifies the kinds of tensions that many adoptive families experience.

Conclusion

New modes of thinking about and enacting kinship, such as ARTs and transnational adoption, can be terrains of practice and thought on which existing ideas about the relationship between racial and kinship relatedness are reiterated and renaturalized, but also terrains on which those ideas are unsettled and challenged. ARTs are often based on ethnic and racial matching, but they may be manipulated to allow racial whitening in a way that allows a 'mixed-race' baby to appear from a nonmixed couple; they may also denaturalize the race-kinship logic by foregrounding the affective links that are thought to connect and indeed create kin. Transnational adoption likewise creates the possibility of nonwhite children belonging to white parents and upsets notions of what constitutes a 'normal' family. On the other hand, ideas about race-kinship congruity reappear in the form of naturalized cultural roots. As Franklin and McKinnon (2001a: 21) say, 'boundaries – of nations, cultures, species, races, persons, bodies, cells – have been breached' and thus unsettled, but at the same time there are ways in which 'such ruptures become occasions to re-establish and reinforce familiar normative categories'. There is an increase in options for reckoning, imagining and talking about belonging, connection, genealogy and thus also kinship and race. Race-kinship congruity has long been a variable construct, changing over time and space, as I argued in the first sections of this chapter. Its variability is increased in the context of new technologies.

The reckonings and imaginings around kinship and race always take place within the constraints established by the political, economic and social context – belonging to a given racialized category or a particular family or kin network will always be a practice shaped very powerfully by that context. So what are the implications of the changing connections between race and kinship for the politics of identity and differences? It is clear that genetic technologies can open the way to biologically determinist and essentialist claims to identity – for example, in the use of ancestry testing discussed in several chapters of this book, although these tests also have contradictory effects that do not always reinforce essentialisms. However, the overall effect of ARTs and transnational adoption seems to me to undermine an essentialist and determinist politics of identity. Despite the injunctions of systems of governance that – in 'the best interests of the child' – push towards the racial-ethnic matching of parents with children in the area of assisted reproduction and adoption, people produce families that counter these trends. As we saw from the successive changes to the U.K. Code of Practice on gamete donation, governance policies may follow this lead, drawing back from racial matching as the default option. The increasing rate of mixed unions and the emergence of mixed-race movements in countries such as the U.K. and the U.S.A. certainly challenge simple race-kinship congruity and simple binary categorizations, but they still fall within the underlying logic of race-kinship congruity. In addition, mixedness alone, while it complicates classifications, does not undermine racism or racial hierarchy, as we know from Latin America.

But ARTs and transnational adoption open different avenues because they have the potential to create families that do undermine race-kinship congruity in more radical ways, and the existence of these families disrupts the racial classifications and racial thinking that racism depends on. As I have shown, these practices also provide terrains on which the racialized thinking that links race and kinship in predictable ways can be reproduced, so it is by no means all one-way traffic. But new choices also become available. The language of choice is apposite because, to some extent, there is a quasimarket in the domains of ARTs and adoption. Although both areas are regulated by the state and ethical guidelines, they are also partially privatized. As such, people can use money to access sources of both gametes and adoptive children. Indeed, in Spain there was initially a perception that some people adopted children from Africa or Asia in order to tap into a sense of being cosmopolitan and cool (Marre 2007: 81). In pursuing these choices, then, people may create families the existence of which challenges the racialized status quo of the societies in which they live. That status quo may also be reiterated within the same families and in people's perceptions of them, but it may be that the unsettling they cause is not entirely encompassed and evacuated by the reiteration. ARTs and transnational adoption are minority trends, to be sure, but as the Jamaican proverb tells us, a big tree may be felled by a small axe.

Notes

1. I would like to thank Katharina Schramm for inviting me to the workshop at which I presented the paper which forms the basis of this chapter. Some of the material in this chapter draws on the collaborative project, directed by Jeanette Edwards, called 'Public Understanding of Genetics: A Cross-cultural and Ethnographic Study of the "New Genetics" and Social Identity' (funded by the EU, contract QLG7-CT-2001-01668);

for more details, see http://www.socialsciences.manchester.ac.uk/pug/about.htm, date accessed 23 February 2011. I also draw on my Introduction to an edited volume that arose from this project (Wade 2007).

2. There is a large literature on these changes. See, for example, Carsten (2000), Edwards and Salazar (2009), Finkler (2001), Franklin and McKinnon (2001b) and Strathern (1992). On transnational adoption, see Howell (2007) and Volkman (2005). On gay and lesbian families, see Hayden (1995) and Weston (1991).
3. See Real Decreto 412/1996 (http://www.juridicas.com/base_datos/Admin/rd412-1996.html, date accessed 23 February 2011). I am grateful to Ben Campbell for drawing my attention to this legislation.
4. See http://www.hfea.gov.uk/1606.html, date accessed 23 February 2011.
5. For all the Codes, see http://www.hfea.gov.uk/1682.html, date accessed 23 February 2011.
6. See http://www.hfea.gov.uk/1974.html, date accessed 23 February 2011.
7. In many varieties of Islamic religious thinking, sperm donation is forbidden (more so than egg donation, which can be allowed some Shia Islam areas), as it implies the threat of adultery (Inhorn 2003).
8. The law may not countenance same-race adoption policies – e.g., the U.S.A.'s Multiethnic Placement Act of 1994 (1995) prevented adoption agencies in receipt of federal funds from delaying the adoption of a child because of race – but in practice adoption agencies and social workers often prefer same-race placements. The same law allows race to be taken into account in the best interests of the child.

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Identity, DNA and the State in Post-Dictatorship Argentina

Noa Vaisman

What role can and should the state play in shaping an individual's identity? How has the discovery of DNA as a tool for identity verification fashioned the relationship between individuals and the state? And what is the social power and political limits of the statement 'you are your DNA'? These questions guide my analysis in the present chapter, where I examine the case of the 'living disappeared' – individuals who were forcibly kidnapped as infants by the military dictatorship that ruled Argentina between 1976 and 1983. These individuals, now adults in their early thirties, were raised, in many cases, by the perpetrators of the crime or their accomplices. After their biological identities and familial relations were erased by their appropriators, they were given new names and brought into new kinship relations. The majority of them are still living today with no knowledge about their past or their biological families. My aim in examining the case of the 'living disappeared' and the various approaches that the Argentine state has taken to resolving this very complex situation is double: first, to better understand the relations between individual identity and DNA in this particular historical and political context; and, second, to examine the impact of new technologies, particularly advancements in DNA identity testing, on citizen–state relations in Argentina.

As others in this volume show, and as I discuss further below, the use of DNA to verify genealogical relations is not new, nor is the use of DNA to identify individuals and tie them to specific places and events (see, for example, Aronson 2007). This said, the case of the 'living disappeared' raises different questions and conundrums that I believe can be illuminating for a broader discussion of identity after DNA. Specifically, the case brings into view the complex ways in which DNA is being used today to shape notions of selfhood and identity, and to refashion state–subject relations. In the context of a volume that explores identity politics after DNA, my use of the term 'identity' should be clarified. By 'identity' I mean not only the external and internal manifestations of an individual's biological makeup (see Skinner 2006) but also the socially constructed and historically formed ways in which a person understands him- or herself to be. In this formulation both the social and the biological and their intertwining are politically charged and individually and collectively negotiated. The rift that was created between the genetic (biological) and the social (the lived experience of the person as him- or herself) in the case of the 'living disappeared' is the focus of this chapter.

During the last military rule in Argentina the forced disappearance of infants implied in many cases the active production of new selves for the very young. This was done, as I elaborate below, within the confines of the state when it was ruled by the Armed Forces – specifically, through the falsification of state documents and the creation of social worlds that supported the lies and sustained the fabricated kin ties. Under the re-established democratic government, the work of recuperating the identity of these individuals has taken place through investigations into their personal histories and through the use of genetic tests to uncover and verify their genealogical relations. In this chapter I present the process of identification and restitution,[1] and point to the complexities of the situation and the role of DNA in shaping what is considered – the 'truth' of identity.[2]

The chapter is divided into three parts: I begin with a description of the historical circumstances that created the conditions for the forced disappearance of infants and their subsequent raising by the perpetrators of the crime. In the second part I offer a history of the identification methods and their development in the case of the 'living disappeared'. In this section I examine the ongoing controversy over obligatory DNA identity tests and the solutions the Argentine state has come up with when dealing with cases where individuals have refused to undergo such a test. I end with an emblematic story of a 'living disappeared' and her process of restitution. The story allows me to explore the power of DNA for current understandings of individual identity and to demonstrate some of the complexities raised by the case of the 'living disappeared'.

The Military Dictatorship and the Forced Disappearance of Infants

The 1960s and early 1970s were a time of turmoil and change in Argentina. As happened in other parts of Latin America, the period was characterized by great social and political tensions and grand ideological struggles. At the time, partly in response to the recurring cycles of dictatorial and semi-dictatorial rules, a massive social and political movement developed. Although not restricted to armed struggle, some of the movements resorted to violence in their attempts to foment a revolution. However, their aspirations were cut short by a massive repressive apparatus that was first led by a paramilitary organization – the Triple A (the Argentine Anti-Communist Alliance) – and later by the Armed Forces (Rock 1993: 223).

The Armed Forces condemned the rise of what they considered 'subversive' behaviour. They viewed the tremulous political situation as a symptom of a much larger process of social and political world-takeover by Marxist forces. It was their mission, they believed, to preserve the national culture and Western moral values of Argentines, and to help the country by leading it back towards the road to modernization and civilization (Robben 2005). Unlike earlier dictatorial rules, this last one, which began with a coup d'état on 24 March 1976, attempted to completely change and redirect Argentine society and its future. The regime no longer saw its mission – as earlier dictatorial regimes in the country did – as solely marking a short passage towards a more stable democracy; rather, the Armed Forces envisioned itself responsible for the reorganization of the country as a whole (Novaro and Palermo 2003: 19).

The ideological pillars of the dictatorial rule can be traced back to the early 1960s, when the Argentine Armed Forces adopted the Doctrine of National Security (Rock 1993: 194–237). According to Rock (1993: 195), the Doctrine had three theses: first, that a world communist conspiracy against the West existed and that all 'subversive' forces which struggled to disseminate communism by infiltrating Argentine society and its political institutions were the hidden enemy that had to be discovered and eliminated; second, that national security and economic developments were linked in a way that one could not be achieved without the other; and, third, that the Armed Forces had the right to test the ability and standards of every democratic government and, if found faulty, to overthrow it.

After taking power, the leaders of the Armed Forces declared their objectives: to reinstate Christian values and national traditions and to salvage and reclaim the dignity of all Argentines. To do so they had to ensure national security and to eradicate all subversion and all elements that aided in its existence (Novaro and Palermo 2003: 20). This struggle against subversion had to be done, according to their doctrine, in secrecy, and it included the forced disappearance of individuals, their torturing in clandestine camps, and finally their assassination. It also involved a large repression apparatus that engulfed the whole of Argentine society through street and media campaigns that invited the population to participate in identifying and reporting on any 'subversive' behaviour.

The Plan for National Reorganization (*Plan de Reorganización Nacional*) was implemented across the country immediately after the coup and resulted in thousands of disappearances, thousands of political prisoners, and innumerable individuals and families who went into exile. Together with this planned repression, another plan had gone into effect: the forced disappearance of close to 500 infants. According to numerous human rights organizations (HROs) in Argentina, the Armed Forces had a clear plan to kidnap the infants (the children of the adult disappeared) and raise them in an environment that was more conducive to their ideological position. Grandmothers of the Plaza de Mayo (*Abuelas de Plaza de Mayo*), an HRO, has argued repeatedly that the abduction of infants during the dictatorship and the altering of their identity was part of a systematic plan to annihilate the enemy (Arditti 1999; Abuelas website). The children were forcibly disappeared in one of three ways. They were either taken with their parents by members of the 'task forces' and later separated from them and given up for adoption, or illegally appropriated by military and police personnel and their relatives. Alternatively, they were born in clandestine camps to women who had been held captive after being abducted; children of captive parents were usually taken from their biological mothers hours or, at most, days after their birth. The third form of disappearance took place in the event that the biological parents were abducted from the streets or from another public space, leaving their children without a guardian. In those cases, someone would find the child and hand him or her over to the authorities that, in many cases, did not look for the biological family but instead gave the child up for adoption (for an analysis of some of these cases and the question of illegal appropriation and adoption, see Villalta 2010; Regueiro 2010).

Abuelas and the Search for the Disappeared Children

First under the dictatorship and subsequently during democracy, the fight against human rights violations has been led by the families of the victims. Abuelas de Plaza de Mayo is one of a number of HROs that emerged under dictatorial rule. Founded in 1978 by women whose adult children and their children had been disappeared, this HRO focuses on finding the 'living disappeared', that is, their grandchildren, and 'restoring' their identity. The work of Abuelas is anchored in the idea – established within human rights legal instruments – that each individual has a right to his or her own identity.[3] This identity was altered (or 'stolen') when the infants were forcibly abducted by the military regime and provided with new names, new identity documents and placed in new families. By searching for these individuals, identifying them, and providing them with information about their biological families, the organization claims that it is giving them an opportunity to reconstruct their identity based on both knowledge and truth. The grandmothers argue that instead of the lies and half-truths they had grown up with, the individuals who have been found can now construct, with the knowledge they have, a 'true' and solid identity.

However, the road to the identification and restitution of the 'living disappeared' was never smooth. With the return to democratic rule in 1983, Abuelas approached the state for support; the response the organization received varied between the different administrations. Below I point to three achievements in Abuelas's attempts to rectify their political plight: the creation of the National Bank of Genetic Data, the creation of the National Commission for the Right of Identity (CONADI) and the International Convention on the Rights of the Child. Although these institutional achievements are great, the act of restitution is much more complex and involves a legal process as well as a DNA test. Because cases of restitution must pass through the courts, Abuelas's approach to the process has been shaped by key legal decisions. Therefore, following a discussion of the methods used for identification, I address a few key legal decisions and elaborate on their political and social ramifications.

The National Bank of Genetic Data

Following their plight to identify the children who were located through anonymous tips and rigorous searches, Abuelas approached Raúl Alfonsín, the first democratically elected president after the dictatorship, with a project: to create a National Bank of

Genetic Data. Abuelas, a number of governmental organizations and the immunology service in the Duran Hospital proposed the project that was ultimately passed as a law in May 1987. Today the Bank holds the genetic information of members of families of the 'living disappeared' who are looking for one or more of the disappeared children (Abuelas de Plaza de Mayo 2008; Avery 2004). Although there is genetic information from many families in the Bank, information is still being collected today from families that did not provide their testimony on previous occasions, or in more recent cases where pregnancies, which were not known about, are discovered through the crossing of information from various survivors' testimonies. The information in the Bank, according to the law, will be safeguarded until at least 2050. Moreover, the law stipulates that all genetic testing for identity will be free for the families of the disappeared; separately it was also stated that in cases of individuals whose identity is in question, the presiding judge can send for genetic testing in the Bank (Abuleas de Plaza de Mayo 2008: 72). According to María Belén Rodríquez Cordozo, who heads the Bank, when a person arrives for a blood test, his or her identity paper is revised, and fingerprints, a photo and a blood sample is taken (Abuleas de Plaza de Mayo 2008: 114).

CONADI and the Spontaneous Search for Identity

Following the request of Abuelas, the government created the National Commission for the Right to Identity (CONADI). This institution is a hybrid between a nongovernmental organization and a state structure that is responsible for the advancement of the search for the 'living disappeared' and other individuals whose identity or biological origins are unknown. The Commission works closely with Abuelas and is unique in its mandate to issue DNA tests without having to initiate a legal process before the results are known. Since its founding in 1992, the Commission has become a place where many individuals who have doubts about their identity have come to get help and investigate their biogenetic ties. In some cases, the Commission is viewed by potential seekers as a safer place to approach than Abuelas or even H.I.J.O.S.[4] because it does not have the same political profile that both HROs have. Thus, as I was told by the head of CONADI, individuals who had been taught by their appropriators to hate and fear the HROs – particularly Abuelas of the Plaza de Mayo and Madres of the Plaza de Mayo – find approaching CONADI with their doubts a little simpler.

In recent years, the spontaneous presentation (*presentación espontánea*) of individuals in both CONADI and Abuelas is becoming more widespread. In fact, the majority of individuals located in recent years have sought out one of the organizations rather than having been located through detailed searches. This is particularly true since the 'living disappeared' have become adults and are exposed to the numerous media campaigns that Abuelas organize. These campaigns include many festivals and art exhibits, as well as an annual cycle of short plays that are performed for free in many of the central theatres in Buenos Aires and in other major cities in Argentina. In 2005 I was told by members of Theatre for Identity's (*Teatro por la Identidad*) organizing committee that at least three individuals had approached Abuelas and

CONADI after watching a play in that year's cycle. All three were looking for more information about their biogenetic ties.

The International Convention on the Rights of the Child

The fight for the restitution of the disappeared infants within the Argentine setting also generated an international appeal. In the mid-1980s Argentina became involved in the drafting of the International Convention on the Rights of the Child, which was adopted in November 1989 by the United Nations General Assembly. Abuelas played a significant role in the formulation and development of three articles in the Convention. Article 7 states that the child will be registered right after the birth, will be given a name and will be cared for by his or her parents. Article 8 states that the child has the right to preserve his or her identity, including nationality, name and family relations. States will also provide assistance and ensure the re-establishment of these rights if the child has been illegally deprived of some or all elements of his or her identity.[5] Article 11 indicates that the state will take measures to combat the illicit trade of children and their transfer abroad. Ratifying the Convention was significant both as a statement by the democratic government about violations of human rights and as a position that could be adopted in legal deliberations. In 1991 and again in an appeal in 1992 using the right to identity as the judicial argument, the first case of full adoption was annulled. This case, the Ximena Vicario case, is complicated[6] and important because full adoption in Argentina is irrevocable; however, with the recognition of the right to identity and the exposure of the falsified documents, the adoption was nullified and the law was changed (Jaroslavsky 2004: 105; Oren 2001: 165–169).

The three achievements described above have been stepping stones on the road to locating and identifying the 'living disappeared', but they have left much to be desired. Specifically, finding the 'living disappeared' is still contingent upon either a search conducted by the HROs based on anonymous tip or the spontaneous appearance of individuals who have doubts about their identity in one of the institutions that work towards their localization and identification. In other words, the state has not done much to help locate these individuals by, for example, requiring the military to provide information about possible births in clandestine camps during the dictatorship. Moreover, as I describe below, the process of identification is long and complicated and takes place in a system which still employs judges and lawyers which supported the military rule. The extensive history of the struggle to locate and identify these individuals and its various turning points is a testimony to Abuelas's fight to find and recover their kin.

Finding and Identifying the 'Living Disappeared'

A number of paths can lead to the localization and identification of an individual as one of the 'living disappeared'. One path, which was particularly important until a few years ago, is the investigations that the HRO Abuelas conducted following anonymous tips. The investigations include, for example, research into the history of the family, the possible location of the birth, and any ties that the family had or continues to have with police or Armed Forces personnel who were on active duty during the dictatorial rule. A second successful path was developed when Abuelas realized that once the children had grown older, they were themselves capable of conducting a search for their biological families. The aim then became to persuade individuals, who were born between 1975 and 1980 and who have doubts about their possible biological identity, to initiate a search. To accomplish this goal, Abuelas created numerous artistic campaigns, organized festivals and produced public advertisements where the forced disappearance of infants was depicted. These campaigns used phrases such as: 'if you were born between 1975 and 1980 and you have doubts about your origin contact Abuelas' or 'to be able to choose one must know the truth'. These phrases reflect the position of the organization regarding the disappearance of infants and the implications of the crime for Argentine society more generally. More specifically, for the organization the fact that there are hundreds of individuals who are living with altered identities amongst the Argentine population means that anyone can be a 'living disappeared' and no one's identity is certain. This is particularly true for a whole generation – those born just before or during the dictatorship – which was targeted for disappearance and alteration of identity.[7]

The methods used to identify individuals also changed over the years. While still under dictatorial rule, the 'living disappeared' who were found by Abuelas were relatively easily identified by sight, that is, by finding visually palpable familial resemblances. However, this form of identification was not legally sufficient to determine familial ties, and Abuelas had to find other means to establish the children's identity. Moreover, in some cases the children were never seen by a living biological relative, making identification by sight impossible. As the 'living disappeared' grew older, identification became even more complex, requiring a long process of verification. To solve the problem Abuelas turned to scientists for help. In fact, since the early years of the organization's work, scientists and scientific methods have been used to establish the identity of the 'living disappeared' and to compensate for the lack of information about genetic ties which was caused by the disappearance and subsequent assassination of the biological parents (Abuelas de Plaza de Mayo 2008: 29–101).

In the early years during and directly after the dictatorship, the central method of identification was blood tests. However, until Abuelas presented their case to scientist in the U.S.A. and Europe, most blood tests and statistical measures for paternity were based on the possible ties between biological parents and their children. The case of the 'living disappeared' was different because there was no genetic information from the biological parents, only genetic information that could be collected from the grandparents and family members who survived. Thus, there was a need to develop a new method to measure the probability of genetic connections between individuals and family members. In the early 1980s a statistical solution was created and named 'grandpaternity testing' (Penchaszadeh 1992: 296). It was based on the common paternity blood tests (the comparison of different red blood cell antigens such as ABO, Rh, Kelley and white cell HLA antigens) with the modification of the statistical formula to account for the missing information from the progenitors. By comparing a large number of genetic markers between the 'living disappeared', grandparents and other family members, it is possible to exclude paternity in a high percentage and subsequently assign a probability of inclusion in a specific biological family (Arditti 1999; Penchaszadeh 1992).

With the creation of the National Bank of Genetic Data, the process of identification evolved and improved. Thus, when a potential 'living disappeared' is 'located', genetic markers on his or her DNA are compared with the DNA material of all the families in the Bank. In cases where the individual has been found to be included with a very high probability (over 98 percent) in a particular family, his or her identity is officially recognized. However, in some cases there is no statistical evidence for inclusion. One reason for this is the lack of genetic information available for comparison because some biological families did not deposit their genetic material in the Bank. Another reason is that as a response to the repression, some families withdrew from the public sphere and closed off to outside and even state-initiated retribution. Other reasons are lack of knowledge; in particular, there are some cases where the families of abducted adults did not know about the pregnancy and thus never initiated a search. With the slow collection of information from survivors and the crossing of data from other sources, some clandestine pregnancies have been uncovered and the families have been contacted.[8]

Today the methods of identification are based on a number of different elements: microsatellite markers on chromosomes as well as on the X sex chromosome and, if applicable, the Y sex chromosome, and mitochondrial DNA. By using a large number of markers it is possible to 'obtain kinship probabilities that are high enough to confirm biological links' (Abuelas website).[9] This means that it is possible to exclude a person with a very high degree of probability. If no exclusion can be determined it is considered a high inclusion case. The probability of inclusion is based on the frequency of the markers in the population; therefore, if a person was not excluded from a genetic group, there is a high probability (over 98 per cent) that he or she is part of that familial group (Lynch 2003; Penchaszadeh 1992).

DNA and Identity: A Complex Picture

Many of the chapters in this volume centre on the search for identity and ancestry through DNA tests (see Chapters 5, 6 and 7). They examine the complex relations between the scientific methods used to demonstrate links and connections between people across space and time, and describe people's use of this information for the purpose of constructing or re-evaluating their personal lives and collective affinities. These chapters depict the search as an outcome of, in most cases, individual curiosity, a desire to belong or a personal need to reconstruct a lost history (e.g., a group or familial history lost as a result of slavery; for other examples see Nelson 2008; Pálsson 2007; and TallBear 2007). And, although this search requires the participation of many people and sometimes whole groups (not only through Internet-based networks but also in the production of DNA databases large enough to allow viable comparisons), it is at its core a personal project.

While the cases mentioned above raise questions about individuals' desire to belong and the role of scientific methods in the production of identity politics today, the case of the 'living disappeared' presents us with both similar and additional conundrums. Although in some instances individuals suspected of being 'living disappeared' have come to Abuelas or to CONADI asking to learn about their genetic ties, in numerous other cases they have demonstrated a clear disinterest in learning of their biogenetic origins. Instead they have been either approached by the organization or required by the courts to undergo a DNA test. This second scenario, where an individual is reluctant or even refuses to learn her or his identity but is obligated to do so, produces a complex set of tensions and conflicts. Whose rights should prevail, those of the individual over her or his biogenetic information, or those of the state over that same genetic material? Is the individual's right to privacy more important than the right of the family to find out about a possible family member? It is important to note that one of the particularities of the cases of the 'living disappeared' is that the state is involved in producing the personal history of each individual. In other words, it helps in rearticulating ties which, when governed by the military, it intentionally destroyed. The state's involvement in the production of an individual's identity is not straightforward and, as I show below, over the years there have been various turning points and dramatic shifts in this relationship.

The Reaction of the 'Living Disappeared' to the Identity Tests

In most cases the identification of a 'living disappeared' is a long and difficult process which begins either with a search conducted by one of the organizations (Abuelas or H.I.J.O.S.) based on anonymous tips or with an individual approaching Abuelas because he has doubts about his real origin and questions about his biogenetic ties. Aside from scrutinizing the historical data registered in official state documents, revisiting familial history and using testimonies of witnesses to verify information about the individual's early life, part of the identification process includes the ordering of blood tests. The blood is used to extract DNA which is then compared with the DNA of families which have deposited their genetic material in the National Bank of Genetic Data. The legal demand for a blood test in the case of those suspected of being one of the 'living disappeared' has produced mixed results: some of the individuals resisted by simply not appearing for the blood test or appearing for the appointed test but refusing to give blood. Others have resisted by appealing the courts' orders, reaching in some cases the highest instances of the legal system – the Supreme Court of Argentina.

Key Cases in the Supreme Court

In 2003 the Supreme Court of Argentina ruled in a case of a 'living disappeared' who refused to undergo a blood test which was to be used for a DNA identity test. The Court stated clearly that the state could not force an adult to give blood or to search for her own identity if that individual was not interested in learning about her past and biogenetic ties (see Vaisman n.d.[a]). Since that verdict was passed, a new method of identification and verification of identity has been put in place – identity tests based on DNA found in biological material that is naturally detached from the body and left in the environment (on clothes and other surfaces). In 2005 a judge sitting in one of the cases of a possible 'living disappeared' found out that DNA identity tests can be carried out not only on blood but also on other bodily substances. The judge ordered house searches in the homes of a few individuals whose identity was in question. In those raids, personal objects such as used clothes, toothbrushes, a comb and used linen were collected. All these objects can contain old skin and hence may be a good source of DNA material. This method eliminated the need to extract blood and has allowed the courts to bypass the difficult problem of using the body of the individual against his or her will (see Abuelas de Plaza de Mayo 2008; Lyon 2001).

Since this tactic was first implemented, material evidence from the homes of at least nine individuals who had refused to undergo a blood test was used to ascertain their genetic identity as 'living disappeared' (Abuelas website). The juridical reasoning behind these house raids has been that the crimes of disappearance and alteration of identity are ongoing and it is the obligation of the state, through its judicial system, to stop them.

In August 2009 another key case reached the Supreme Court. This time an individual who was suspected of being a 'living disappeared' and whose house was raided in a search for DNA material contested the search and the state's right to uncover his biogenetic ties. In that case, the Court ruled that although the state cannot force the individual to provide blood for a DNA test (based on the 2003 ruling), it has the right to uncover an individual's identity using alternative means, i.e. to conduct a test based on other biological material which is collected from the homes of individuals suspected of being 'living disappeared'. Two of the presiding judges also suggested in their ruling that although the state has a right to find out whether an individual is a 'living disappeared', it does not have to impose that information on the individual in question. That is, if the individual is not interested in learning of his biogenetic ties, the state can keep that information from him and only notify the biological family, which has been searching for him since his disappearance (Vaisman n.d.[b]).

From Supreme Court Decisions to an Amendment of the Law

Soon after the Supreme Court's decision in August 2009, an amendment of the federal code of criminal procedure – law number 26549 – was enacted. According to the new amendment,[10] which was passed in late November 2009, the state has the right to carry out a DNA test for the purpose of verifying an individual's identity, even against his or her wishes. In each case where the identity of an individual is in question, the state must first use all available alternative means before attempting to carry out a blood test. In other words, although the amendment allows for 'minimal extraction of blood, saliva, skin, hair or other biological samples', it also states that these tests should be carried out with minimum interference and injurious effects to the person and 'without affecting his modesty, considering especially his gender and other particular circumstances'.[11] Moreover, 'if the judge considers it advisable, and always when it is possible to reach the same level of certainty with the results of the method used, [the judge] can order the collection of DNA using means other than corporeal inspection, such as the confiscation of objects that contain cells which are already separated from the body'. The decision on the methods used must be based on the particular circumstances of the individual; that is, the judge must take into account the conditions of the individual and 'avoid his re-victimization and protect the specific rights that he has'. In effect, the amendment supports the use of all methods – including blood tests – to verify the identity of an individual. However, it also recognizes that alternative means of DNA identity test can and should be used prior to any corporeal inspection.

The amendment is interesting for a number of reasons: first, unlike the 2003 Supreme Court decision, the amendment states that blood tests *can* be carried out in cases where other means of identity verification using DNA material have been exhausted. Second, the law does not distinguish between the individual's wishes and the need to clarify 'circumstances of importance to the investigation'. In other words, the aim of the DNA identity test is not only to identify the individual but also to elucidation the crime (in the case of the 'living disappeared', this implies the forced disappearance and appropriation of the individual in question). This is a subtle but important point: in the 2003 Supreme Court decision, the Court ruled that the individual's intimacy and privacy were more important than the final and absolute clarification of the crime in question (in that case the final resolution meant providing the presumed biological family information about their possible biogenetic ties to the individual in question); in the new amendment the crime is positioned on a par with the identification of the individual. Thus, the elucidation of the crime is as important as the identification of the individual in question. Third, the law does not indicate exactly what rights the individual has over the information that is gathered from his DNA. In the 2009 Supreme Court's ruling, two of the judges stated that the courts can provide information about the biogenetic identity of the individual to the families who are searching while keeping it from the person himself. While in the words of the new amendment it is unclear how that information should be treated – must an individual learn of his biogenetic identity even if acquiring that information goes against his own wishes? Or, can the information be used to help in the investigation of the case without imposing that knowledge on the individual?

For the present discussion, the important point of this legal formulation is the vision it presents for state–citizen relations. According to the new amendment the state has a right over the individual's DNA – whether that DNA is extracted from the body or from artefacts containing biological material that was detached from the body by natural means (e.g., old skin left on used clothes and linen). It also has a right over the information that this DNA contains; that is, it has a right over an individual's identity. It is important to note here that the term 'identity' in fact implies a sense of self and belonging, a person's experience of his being and his connections to the world. Thus, the amendment articulates a very intimate relationship between the subject and the state. The use of DNA in this way raises various questions about the limits of the state's reach and the role of the collective (in this case both the family that is searching and Argentine society more generally) in shaping an individual's sense of self and social world.

While the relationship between the state and the individual is defined through and by means of DNA, the use of DNA for identification is not unique to this case. In fact, for many years now, states have been collecting and using individuals' DNA for criminal identification (see Lynch et al. 2008). However, the case of the 'living disappeared' is different for a number of reasons. First, DNA is used here not only for the incrimination of the perpetrators of the crime but also, and most importantly, for the identification of the victim. Second, identification in the case of the 'living disappeared' does not imply a match between an individual's DNA and his own DNA taken at a different moment in time; rather, identification here means the repositioning of the individual within the social world. The individual is only fully identified when he or she is found to 'belong' to a particular familial group and when he or she is located within a partially unknown (hidden) history (the history of the forced disappearance). Third, identification also involves the reordering and the relocation of the individual within a collective narrative of repression and mass human rights violations. The recovered individual becomes one of the now 104 individuals who have been identified and informed that they were forcibly abducted as infants by the military regime.

Apart from the individual difficulties and complex psychological processes, becoming one of the 'living disappeared' can carry with it enormous social weight as well as dramatic political consequences. Although many of the individuals found by Abuelas do not appear in public and do not tell their story, others have – particularly in the past few years – made it a point of making their story known through interviews in major newspapers, books, documentary films, radio shows and public events. Concurrently, Argentine society has been an avid consumer of these stories and has followed closely the life histories of these individuals and their transformation following the discovery of their biogenetic kinship ties. To illustrate some of the processes I have discussed so far, I now turn to the story of Victoria Donda. Victoria's discovery of her biogenetic identity reflects the difficult process of identification and restitution in Argentina today and illustrates the complexities of the relations between DNA and identity.

A Complicated Family History

Victoria Donda is the youngest woman to become a Member of Parliament in Argentina; her political rise coincided with her discovery of her real biogenetic identity. She was born in the Navy Mechanics School, the ESMA (*Escuela Mecánica de la Armada*), sometime between August and October 1977. According to the testimony of a survivor from that camp, Cori, her biological mother, had named her Victoria and had passed a blue thread through her earlobe so she could be identified. Fifteen days after her birth, Victoria was separated from Cori and was given to a couple, Juan Antonio Azic and his wife Esther Abrego.[12] Once separated from her biological mother, Victoria was renamed Analía, she was given a new birth date, two years younger than her real date of birth; and was registered as the biological daughter of Juan Antonio Azic – at the time, the Main Assistant Officer of the Argentine Coast Guard and a member of the task force 3.3.2[13] – and his wife.

In her book *My Name is Victoria*, published in 2009, Victoria narrates her life story, growing up in a normal middle-class Argentine family in the years following the period of dictatorial rule. In telling her story she recounts her loves and friendships, the people who had most influenced her thinking and her political inclinations, and her awakening to political activism, which began very early in her teenage years. Throughout the narrative she weaves together her personal story of growth with the historical events that were simultaneously taking place in Argentina. One of the interesting things about the book apart from the story she tells is Victoria's decision to protect some of those closest to her. For example, the appropriating couple that raised her are called by fictitious names – Raúl and Graciela – and her sister, who is also a 'living disappeared', is only mentioned sporadically. Regarding her sister, Victoria explains that each one has to find her own path to the truth. Thus, out of respect for her sister and the path she had chosen, Victoria keeps out of the book any information that would identify her sister or expose her struggles with her biogenetic identity.

Victoria was first approached by members of the committee Herman@s (brothers/sisters) from the HRO H.I.J.O.S. in 2002. They were conducting a secret investigation into her possible origins and needed to see her up-close for possible preliminary visual identification. At the time they did not tell her the reason for their visit. A short while after the encounter, of which Victoria did not think much, another event took place that completely changed things. During July 2003 the Judge Baltasar Garzón, a world renowned Spanish investigating judge at the time, initiated the legal prosecution of Argentine police and army officers who had committed crimes against Spanish citizens during the military rule.[14] Judge Garzón sent a list of names for extradition and among those mentioned was Victoria's father. Raúl found out about the extradition request and attempted to commit suicide before the list of names became public. He tried to shoot himself in the mouth but succeeded only in destroying his face. Victoria, who had first learned of the attempt an hour or so after it happened, rushed to the hospital and spent the night at his bedside. As she was walking out of the room where Raúl was laying unconscious, she turned her head to the TV screen and saw the list of perpetrators called for extradition and immediately recognized her father's name among them. Devastated by this new information, she did not know how to react – her father was one of the criminals she had been fighting, through her political activism, to put behind bars.

During that period and as part of her political work, she had been collaborating with the HRO Abuelas. When she learned of her father's past she was unable to contain her suffering and contacted the organization. As she explains, 'I needed to ask for forgiveness because I had discovered that my father was a torturer, I needed from the very bottom of my heart, that someone would tell me that I had the right to continue my political activism, that my genetic inheritance would not stop me from continuing to fight for what I had always fought for' (Donda 2009: 186).[15] On the other end of the line, the president of the organization told her what she needed to hear. What Victoria did not know at the time was that the organization had called for an emergency meeting with members of H.I.J.O.S. They had spent a great deal of time investigating the case and carefully building it, and were not ready to see it all go to waste or to hurt Victoria in any way.

In that meeting, the representatives of the different organizations and a few of her friends and acquaintances decided it would be best to tell Victoria the whole truth, instead of letting her believe that her father was a torturer. Thus, three days after her father's attempted suicide, Victoria met with a friend and a well-known political figure in a small café-bar in the city. He explained the suspicions the HROs had regarding her possible appropriation and suggested that they move to another café-bar where members of H.I.J.O.S. were waiting. They, he stated, would be able to tell her everything in more detail (Donda 2009: 14–17, 187). In presenting their suspicions and investigations regarding her identity and biogenetic origins, the members of H.I.J.O.S. and Abuelas were careful not to reveal who they suspected was her real biological family. In fact, both HROs have made it a strict rule to wait until the DNA test is conducted to verify and confirm biogenetic relations (Donda 2009). The reason for this is quite simple: although the investigation based on anonymous tips can point to a particular family, until the DNA test is carried out there is no certainty that this is the correct match. In effect, there had been a few cases in the past where a mistaken match was corrected using DNA identity tests, sometimes at the cost of great suffering for both the families and individuals in question. Victoria did not immediately go through with the DNA test. In her book she explains that she was afraid of the consequences, specifically the possible use of the test against Raúl and Graciela. She did not want to cause them more suffering and pain.[16] When describing the home she was raised in she states numerous times that because her father had retired early, she did not know of his participation in the repression, nor was she aware of his activities during the dictatorial rule. She describes Raúl as a strict but loving father and herself as the rebel in the household. While she turned increasingly towards political activism in areas and with groups that stood in complete contrast to her father's strong convictions, she depicts him as a supporting paternal figure who was willing to help her in all of her activities. The picture that emerges from her story is a complicated one, which shows all the contradictions and incommensurability of the situation she is in. Although, as she writes, she recognizes Raúl's involvement in her appropriation, she explains in very plain terms that the strong feelings she had towards her parents and the history of shared relations, particularly in a family as tight as her own, are not easily changed.

However, choosing not to go through with the DNA test also meant remaining in a state of uncertainty regarding her identity and sense of belonging. About a year later, in March 2004, she finally decided to undergo the test. In her narrative of her decision she explains that it happened on 24 March 2004 during a public event in commemoration of the last military dictatorship. That 24 March was especially important because the ESMA, where a large clandestine and torture camp functioned during the dictatorship, was transformed into a museum of memory (*Museo de la*

Memoria) or 'Space for Memory and for the Promotion and Defence of Human Rights' (*Espacio para la Memoria y para la promoción y defensa de los Derechos Humanos*). This was the same place where Victoria was born. On stage during the ceremony, another individual, Juan Cambandié, who was himself born in the camp, told the very large crowds that gathered outside the gates of the notorious place his story of restitution. He had discovered his biogenetic identity only two months prior to the event. Victoria, seeing Juan directly following his speech standing by the stage shaking, said to him: 'at least you know who your parents are'. A short while later, as the doors of the main building opened, Victoria, together with members of H.I.J.O.S. walked into the dreaded space. Inside, she writes, walking in the hall where torturers had walked and where her own mother had suffered and had given birth, she realized that if her mother had the courage to have her there in that terrible camp, then she must have the courage to undergo the blood test.[17]

Victoria went through with the blood test and found out who her biological parents were. She also learned more about the complicated history of her biological family, specifically that her uncle was a known torturer in the ESMA while her father, his younger brother, was abducted and tortured in that camp. She further learned that she has an older biological sister who had been raised since childhood by her uncle. The sister, as Victoria describes it in her book, had been raised to hate her biological parents, and to this day she maintains a very right-wing radical political position. So far, the sisters have not been able to create a steady relationship.

Towards the end of book, when Victoria narrates the work she has done since discovering her biogenetic identity, she says: 'Victoria and Analía were in the end the same person. And that person was me' (2009: 236). She clarifies that the process that brought her to this realization was long and did not lead to a single solution: 'I had to learn bit by bit to incorporate a new history, a new family, a new origin … I am a product of the dictatorship in the same way that I am a product of the love that Raúl and Graciela knew how to give me, and I recognize myself in them as I do in Cori and el Cabo [her biological parents], to whom I feel love as much as one can love those whom she never knew … I am not less Analía than Victoria' (2009: 240). With this statement and the numerous stories of her encounter with her biological family and her biological parents' various friends and companions, Victoria brings the complexity of the situation to light.

Conclusion

Victoria's story, although unique, shares a number of elements with many other stories of restituted individuals. Specifically for the current discussion of DNA and identity, her statement that she is both Analía and Victoria at the same time is perhaps most significant. For her, as for many other restituted individuals, her identity is a product of both her DNA and the history and world she created while she was raised by her appropriators. Her DNA not only draws out a new familial structure that she is, at least genetically, a part of, but also shows her to be the particular person she is. For example, throughout the book Victoria describes herself as a rebel who fights for her beliefs and political convictions. She then states in numerous places that from what she could construct based on testimonies, she is just like her biological mother. At the same time, the person she is, she makes it clear, is also a product of the life she has led so far, the family she was raised in and the love and relationships that she constructed until she discovered her biogenetic identity. In this way it is not only the DNA nor only her personal history and social relations that make her who she is; rather, as she notes, she is Analía and Victoria at the same time.

Victoria's story of recovering her identity allows the reader to see the complexity of the situation and the dilemmas she was facing when she had to decide whether or not to undergo the DNA identity test. Her political position has also allowed her to relay her experience to others. On one such occasion she gave a statement in Parliament when the amendment to the Federal Code of Criminal Procedure was debated, She explained that the crimes of forced disappearance and appropriation were committed by the terrorist State (i.e., the state when it was ruled by the Armed Forces), and these crimes are still being committed today.[18] The amendment to the law would allow the state to combat the crime, she stressed. She then quoted from the letter written by numerous 'living disappeared' who were found and their siblings, which repositions the state at the centre of the search for identity. They write that 'the right to identity is a human right and as such it is inalienable. It is as important as the right to life, to liberty and physical integrity. No one has to decide [or has to face the decision of] whether or not to exercise that right because it is the State that is responsible to guarantee and preserve it'.[19] In effect, the passing of the amendment repositioned the Argentine state so it can now shape, decide and influence its citizens' identities through their own DNA.

Notes

1. Appropriation, identification, localization and restitution are all terms used in the mass media and by human rights organizations in Argentina to describe the process of locating an individual who is suspected of being one of the 'living disappeared', identifying and genetically verifying his biogenetic origins and providing him, along with information about his biogenetic history, with the opportunity to reconstitute his or her identity and build new kinship relations based on the information revealed through DNA tests.
2. My use of the term 'truth' is deliberate: in the search for the 'living disappeared', while the identity of the individual as she knows herself to be is considered to be fabricated, her genetic identity is repeatedly defined by both human rights organizations and the popular media as her genuine and authentic identity.
3. See the right to identity in the Convention on the Rights of the Child, specifically, Articles 7, 8 and 11.
4. H.I.J.O.S., *Hijos por la Identidad y La Justicia contra el Olvido y el Silencio* (Sons and Daughters for Identity and Justice against Forgetfulness and Silence) is a HRO originally made up of the children of the disappeared. This HRO has a number of commissions, each focusing on a different aspect of the struggle for human rights in Argentina today. Herman@s (brother/sisters), created in 1998, is the commission that focuses on the search for the 'living disappeared'. Members of the commission collaborate with both Abuelas and CONADI in actively looking for the 'living disappeared', sometimes their

own siblings. They believe it might be easier for individuals doubting their identity and biological origin to approach people their own age rather than the elderly grandmothers. This commission was actively involved in the restitution of Victoria Donda, whose story I will discuss in the third part of this chapter. For more information about the organization and the commission, see: http://www.hijos-capital.org.ar/index.php?option=com_content&view=article&id=144&Itemid=412.

5. This article is used in legal cases in Argentina to argue for the right to identity. Like other human rights documents, the Convention as a whole received full legal standing with the reform of the constitution in 1994. Its articles are now as binding as any other article of the constitution.
6. Ximena Vicario arrived at an orphanage at the age of nine months after she was forcibly abducted with her biological mother who, to this day, remains disappeared. Although her adoptive mother was not associated with the military or police, it was established that she was aware of the child's origins and chose to conceal the information from her. Once the child was located, the adoptive mother did not cooperate with members of Abuelas and pursued a long legal battle to gain custody of the child after that custody was revoked by the courts.
7. The commission Herman@s web page states that the search for identity is not only a search for one person; it 'implies a search for [the] identity of a whole generation … because as long as there is even one altered identity a whole generation can have doubts about his origins' (http://www.hijos-capital.org.ar/index.php?option=com_content&view=article&id=144&Itemid=412).
8. With the constitution of CONADI many cases of individuals whose origins are unknown were discovered. These cases include, for example, individuals whose date of birth or circumstances of adoption do not fit the profile of the 'living disappeared' (e.g., they were either born before 1975 or after 1980) but who are driven by a need to discover their biogenetic origins. In all likelihood, many of these cases are the result of trafficking in children and the lenient mechanisms of adoption at the time. Because of the way adoption was carried out in Argentina, these individuals have no way of ascertaining their biological origin. The only conclusion that can be drawn is that they are not included in one of the numerous families who have deposited their DNA in the Bank.
9. All translations from Spanish are my own.
10. For the full text, see http://www.infoleg.gov.ar/infolegInternet/anexos/0-4999/383/texact.htm#8. The mendment modifies Article 218B in the Federal Code of Criminal Procedure (*Código Procesal Penal*).
11. Translations from the Spanish legal text are my own.
12. For information on Juan Antonio Azic, see http://www.pagina12.com.ar/diario/sociedad/3-128106-2009-07-12.html and http://www.desaparecidos.org/arg/tort/marina/azic/.
13. For more on the ESMA and the task force 3.3.2, see http://juicioalaesma.org.ar/spip.php?article3 and http://www.cels.org.ar/esma/responsables.html. The task force functioned in the ESMA and was responsible for forced disappearances, torture and murder of prisoners.
14. A large percentage of Argentine citizens have their roots in Spain, and some have managed to maintain their Spanish citizenship. This created a loophole in the justice system that allowed Justice Garzón to initiate the prosecutions of members of the Argentine Armed Forces who committed human rights crimes.

15. 'Necesitaba disculparme porque había descubierto que mi padre era un torturador, necesitaba en el fondo que alguien me dijese que tenía el derecho de seguir militando, que mi herencia genética no me prohibía continuar luchando por lo que siempre había luchado.'
16. This is a common argument made by individuals suspected of being one of the 'living disappeared' against the blood tests. The close ties they have with the family that raised them create a great conflict between their need to find out their true biogenetic identity and their desire to protect their appropriators.
17. She adds: 'I had to understand that all of this was not about Raúl or Graciela, nor was it about doing justice, or putting on trial those responsible for the dictatorship. It was about me, my identity, my past and my possibilities for a future' (2009: 192). At the time, following the 2003 Supreme Court ruling, it was difficult to demand a blood test; moreover, both Abuelas and H.I.J.O.S. believe that individuals should be given time so that they can decide themselves whether to undergo the test, instead of it being imposed on them.
18. This is an argument commonly heard when the case of the 'living disappeared' is discussed. The crime is continually committed because the identity was altered and the individual does not know about his or her genetic origins. Once the truth is uncovered and made known, the crime ceases.
19. Victoria Donda posted her statement to the Parliament on her Facebook profile – for further details, see http://www.facebook.com/note.php?note_id=174382355705.

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5

'Do You Have Celtic, Jewish or Germanic Roots?'

Applied Swiss History before and after DNA

Marianne Sommer

Since the project for sequencing the human genome has been launched, actual and potential applications of medical genetics and gene technology, such as preimplantation diagnostics, embryo selection, cloning, genetic modification of organisms and personalized medicine, have prompted euphoric as well as alarmist assessments regarding their societal impact. Scholars in cultural studies see a new genetic determinism and racism at work, and have warned against the possibility of a new eugenics and of discrimination on the basis of genetic traits (for example, Duster 2003 [1990]; Kevles 1997). On the other hand, the transformative force of the new biosciences has also been worked out, such as in the implosion of traditional notions of 'nature' and 'culture' and the transcending of conventional ideas of kinship (for example, Franklin 2001: 303–25; Haraway 1991, 1992, 1995; Rabinow 1996 [1992]). As a shorthand, these differences may be reduced to an emphasis on either 'the old' or 'the new': are individual and collective identities, such as races, ethnicities or nations, (re)biologized and are we faced with the nightmare of the progressive feasibility of eugenics? Or do the specificities of the current political and economic context of genetics and genomics render such fears about the (re)animation of the demons of the past pointless? Hardly anyone takes a position at either of the extreme ends of what is actually a spectrum of estimates. Neither is there a simple continuation of 'old' biological categories such as types and races, nor has there been a complete break away from the 'old' triangle of biology, (national) territory and quality in a context of globalized, market- and media-driven, neoliberal societies. Most importantly, recent scholarship has made clear that the different life sciences interact in complex and diverse ways with different contexts of application, resulting in a diversity of actual formations along the 'old/new continuum' (Sommer 2008a, 2010, forthcoming).

In this chapter, I engage with a particular application of a specific genetic science mostly in a restricted cultural context: the commercialization of human population genetics in a so-called genetic ancestry tracing company that is located in Switzerland. Despite a considerable overlap in interests, practices, technologies, personae and corporate bodies/institutions, human population genetics (also referred to as anthropological genetics or genetic anthropology) differs from medical genetics and genomics in important ways, the most obvious being its backwards-orientedness. Scientists who are involved in population-genetic projects tend to emphasize that (in contrast to medical projects) they produce purely anthropological knowledge, by which they mean politically neutral, historical knowledge, without practical/commercial intent. However, as genetic anthropology is always already involved in identity politics of individuals and groups – its goal is the establishment of phylogenies and evolutionary histories – this distinction is naïve. It is not that human population genetics, in contrast to medical genetics, is not applied; rather, it is the specific kinds of application that differ from medical genetics. If we are interested in the changes brought about in 'identity politics' by the introduction of population-genetic techniques, we must look at these contexts of application 'before and after DNA'. As indicated by the term 'genetic history' often used by practitioners, we are dealing with applied kinds of history and historically founded identities (Sommer 2008a, 2010, forthcoming).

In order to see how the commercial DNA services for the determination of one's kinship and history relate to previous practices of biological and humanistic applied history in my case study, I take a brief look at identity-political uses of the past in Switzerland. I then move on to the ways in which the genetic ancestry tracing company under concern enters this cultural space. I analyse appearances and representations of the company (mainly) in the Swiss media, and some of the ways in which (mainly) Swiss customers appropriate personalized genetic history and identity. As we will see, the forms of implementing, engaging with or rejecting genetic knowledge differ between customer groups. In the end, I return to some aspects of the question about 'old versus new identity politics after DNA' in relation to my particular case study.

Applied Swiss History before DNA: Ur-folk, Helvetians and *Homo alpinus*

Guy Marchal (2006) has studied historical culture and the politics of history in Switzerland. More precisely, he introduces the term *Gebrauchsgeschichte*, which refers to the temporary conversion of history into an article of everyday use; it designates a history serviceable to a particular (identity political) goal in a given cultural context. It conceptualizes what I mean by the English term 'applied history'. Marchal shows that as early as the fifteenth century, the Swiss believed themselves to be a chosen people in analogy to the Israelites. They built a myth of themselves as an *Ur-folk* (*Urvolk*), an indigenous people with the right to self-government. This notion served to counter the accusation that the peasant uprising (*Bauernaufstand*) was a sin against a God-given social order. Because the legitimation of the claim for freedom against the entitlement of the nobility and princes was founded on an origin as an independent rural folk, the peasant became the figure of identity for the Swiss Confederation. While in the course of the seventeenth century, it was displaced by the invention of the virgin Helvetia, the peasant, specified as an alpine shepherd, was revived as a central trope during the Enlightenment. The stereotypical character of the Swiss people as for example marked by incorruptibility – so famously sung about in Albrecht von Haller's poem of the Alps (*Die Alpen*, 1729) – became inextricably linked with the mountainous country. Coupled with ideas from natural right philosophy, the claim of originally free and frugal primitives served the causes of both political reform and moral education.

With the foundation of the nation state in 1848, the story of the autochthon mountain people turned into a national myth. By the end of the century, this myth stood in opposition to a critical history written by a modern scholarly discipline, but it had important political work to do. Switzerland was surrounded by nations that increasingly founded their identity on a common race and language. The Swiss therefore felt pressed to justify the existence of a plurilingual and ethnically diverse state of the size of Switzerland in the midst of much larger and more homogeneous nations. The response was a national discourse that based the 'oldest republic on earth' not on racial unity but on a common history marked by democracy and independence. The Swiss national identity was therefore not primarily sought in a common biology; rather, it was rationalized by means of a shared history and beliefs that gave unity to racial, ethnic, cultural and linguistic diversity. However, this is not to say that there were no attempts to apply the Aryan theory to Switzerland (for example by Paul Lang of the National Front) or to define the nation biologically (see Kreis 1992).

A relatively harmless but popular example of the latter approach is the attempt of the archeologist Karl Keller-Tarnuzzer (1936) to provide the Swiss with a deep history and longstanding identity through such channels as the newspaper of the canton Thurgau (*Thurgauer Zeitung*). He built two pillars for Swiss identity to rest on, which he drove as deep as possible into the archaeological layers. The first pillar was the antique tribes of the Rhaetians (*Räter*) and the Helvetians. As was common at the time, Keller-Tarnuzzer thought that the Rhaetians had descended from Veneto-Illyrer, who immigrated into the eastern part of today's Switzerland around 400 BC (a theory that has been increasingly discarded since the 1950s). The Helvetians belonged to the Indo-Germanic people of the Celts and Gauls, who inhabited the country between Lake Geneva and the Rhine. There were additional Celtic tribes such as the *Rauriker* in the area of today's cantons of Basle and Berne, the *Allobroger* in the canton of Geneva, the *poeninischen* tribes in the canton of Wallis and the *Lepontier* in the south. To make matters worse, there were also successive invasions into the area of Switzerland. Besides the Romans (15 BC), Germanic tribes entered these regions from the fourth century onwards; these were mostly Alemanni in today's German-speaking part, Burgundians in the French-speaking part and Langobards in the Italian-speaking part. Confronted with what could easily indicate historical discontinuity and ethnic diversity, Keller-Tarnuzzer chose to concentrate on the

Rhaetians and Helvetians, and to emphasize how they had stubbornly maintained their own tradition during Roman rule and in the face of the invasion of Germanic tribes.

Keller-Tarnuzzer described these Helvetian Celts after Poseidonius as tall, blond warriors with scrubby manes hardened by soap and with moustaches covering their mouths. Once upon a time, they wore long trousers and sleevecoats under plaid-collar jackets and were amply decorated with golden rings and necklaces. Their minds were sharp, their words as quick-witted as their weapons were fast. Constantly thirsty and cantankerous, they sat on the bare ground in their round huts, roistering and boasting, pleasing themselves in tragic poses, then suddenly falling into bloody strife. In battle, they wore man-sized shields, long swords and lances, and helmets adorned with horns or animal figures; their war cries were as fearsome as their defiance of death.

Keller-Tarnuzzer's second pillar was the lake dwellers. Their role for Swiss identity becomes most obvious in the last chapter of the offprint *Die Herkunft des Schweizervolkes* (*The Origin of the Swiss Folk/Nation/People*), headed 'Swiss Blood' ('*Schweizerblut*'). Here, one recognizes the motivation for his search of Swiss biological origins in the fear of an appropriation of Switzerland – at least of its Alemanni – by the Third Reich. His strategy was to distinguish between visible or superficial cultural difference and hidden or essential biological unity: even though culturally and linguistically the Swiss might seem a conglomerate of Germans, French and Italians, biohistory proved the Helvetian unity. This is where the lake dwellers came in. These original inhabitants, who once populated the area of today's Switzerland quite densely, had not been displaced by the later immigrants into the territory; rather, their blood blended with that of the incoming Celtic and Germanic tribes. It was through this biological heritage reaching back in time to the Stone Age that Keller-Tarnuzzer defined the unity of the contemporary Swiss and their difference from the northern neighbour: 'There can be no doubt that the blood of the lake dwellers lives on in today's Swiss, and not to a small degree' (1936: 32, translation mine). In his instrumentalization of the lake dwellers at this moment of crisis, Keller-Tarnuzzer could draw on a living and applied history that had revived 'the ancestors of the Swiss' at world exhibitions, in theatres, as motifs in the fine arts, as themes in pageants, etc., since the first discoveries in the middle of the previous century. Not only did different segments of the Swiss populace in the second half of the nineteenth century imagine and engage with the legacy of the lake dwellers differently, they could also both serve to illustrate cultural progress from humble beginnings to the present state of industrialization and at the same time – towards the end of the century – warn against the corrupting effects of too much civilization and the decay of bourgeois virtues (Kaeser 2009; Kauz 2000).

Another biohistorical trope from applied Swiss history is *Homo alpinus* – the biologization of the Swiss alpine peasant myth. As early as the opening decades of the eighteenth century, the Ur-Swiss (*Urschweizer*) were described in Johann Jakob Scheuchzer's natural history as alpine dairymen (*Senn*) and hunters (*Gemsjäger*), similar to the first people on earth. In accordance with the environmental theory of the day, he thought the Swiss – their physical, mental and moral nature – had been moulded by the rough life in the Alps. Scheuchzer was therefore instrumental for the construction of *Homo alpinus* (*helveticus*), a strong, healthy, hardworking, patient, perseverant, good-natured but autonomous human type. According to Scheuchzer, the type's prudence, courage, piety and moderation suited him well for the arts, the sciences and in particular for warfare. Scheuchzer's understanding was also illustrative of the melding of the belief in an originally free Swiss – in his case biocultural – type with demands for democratic rights grounded in natural law (Scheuchzer 1746; see also Marchal 2006: 68–69; Kempe 2003: Chapter 9).

In the second half of the nineteenth century – again following general trends in the history of anthropology – *Homo alpinus* was defined more rigorously in biological terms by Karl Ernst von Bear. Von Bear conferred this species name to the Rhaetians, drawing on their description by Anders Adolf Retzius as a brachycephalic, that is broad- and short-headed, pre-Celtic Ur-race of the Swiss Alps. Like the Swiss peasant, shepherd, dairyman or hunter, the brachycephals in general were regarded as indigenous people of Europe, but in contrast to the international philhelvetian image of the Swiss alpine primitives predominant during the Enlightenment, the brachycephals' capacity for culture was considered to be limited (Schmutz 2006).

In the maelstrom of the growing measurement-craze in physical anthropology, attempts were made to fix the fluid figures of the lake dwellers, the Helvetians and *Homo alpinus* in bone. The paleontologist Ludwig Rütimeyer and the physician and anatomist Wilhelm His (1864) analysed towards 200 'Swiss' crania to determine the typological composition of Switzerland. In the historical crania, they identified the remains of 'our Celtic ancestors', the Helvetians, as well as of the Romans and Burgundians – types that they also discerned in pure and mixed states in the present populace. They ascribed the prehistoric skulls of the lake dwellers they had at their disposal to the same tribe as the Helvetians. However, the largest part of today's Swiss, about three-quarters, were attributable to a type named *Homo alpinus* by von Bear, which Rütimeyer and His speculated might have had the same origin as the Alemanni who later entered the territory of today's Switzerland. But rather than following the traditional interpretation of the 'small' brachycephalic skulls as deficient, they questioned the association between cranial and mental capacity (Rütimeyer and His 1864).

The analysis of the biological types of the Swiss was brought to its empirical apex at the chair for anthropology installed at the University of Zurich under Rudolf Martin. By 1932, Martin's successor, Otto Schlaginhaufen, who had earlier tried the tools of his trade on lake-dweller remains, had measured 35,000 recruits. However, in the attempt that was now clearly driven by the institute's interest in (Swiss) race hygiene, *Homo alpinus* dissolved, with only about two per cent of the population attributable to what he considered the pure Swiss type (Schlaginhaufen 1946 and 1959; see also Chaoui 2004; Keller 2006).

Applied Swiss History after DNA: iGenea

Nowadays, we may react to the historical attempts to find the Swiss biological type of *Homo alpinus*, and to establish the Swiss bloodline linking lake dwellers with the Celtic Helvetians and other antique tribes who inhabited the territory of today's Switzerland, with bemusement, or with incomprehension where they were situated in a context of racial hygiene and race science. Who would be interested in the biological composition of the Swiss populace from Ur- and antique folks (*Urvölker*)? Those who share this attitude might be surprised to encounter the question 'Do you have Celtic, Jewish or Germanic roots?' on the website of iGenea, a service package of the Swiss company Gentest.ch.[1] Even more surprising might be the method of settling this question for the individual customer. iGenea invites to 'discover your history' from your DNA. Two years ago, the directors of Gentest.ch (which became a limited liability company in 2002) – one is a biologist – suspected that there was a European market for the genetic determination of ancestry and history. The Swiss company set out to enrich the range of their DNA products of paternity, relatedness and forensic tests with iGenea, a genetic 'origins and ancestors' product line with its own website.[2]

Customers may choose how many markers their Y-chromosome and/or mitochondrial DNA should be tested for, and they can combine tests, so that the prices currently range from about 200 to about 500 CHF. The DNA analyses are said to provide information on the customer's haplogroup, antic/indigenous people (*Urvolk*, antiquity, 900 BC to AD 900) and country of origin (*Ursprungsland*, Middle Ages, eleventh to thirteenth century). The haplogroup test leads back to the Stone Age. Haplogroups are described as the branches of the human family tree that has its roots in our molecular first parents in Africa. Human population genetics has reconstructed and is still reconstructing the relationships between and the migration patterns and current geographical distribution of these groups by means of comparative DNA analyses. While the haplogroup test is widely offered by genetic genealogy companies and potentially directed towards customers from all over the world, Gentest.ch has developed the genetic identification of one's 'antic/indigenous people' particularly for the European market. This test assigns the customer's maternal and/or paternal genetic line to the Celts, Germanic tribes, Illyrians, Slavs, Vikings, Iberians, Scythians, Arabians, Berbers, Persians, Turkish peoples, Finno-Ugric peoples, Baltic peoples, Huns, Gepids, Alans and Vandals, among others. These are variously called *Urvölker* in German and 'antic' or 'indigenous people' and 'primitive tribes' in English.[3]

In order to be able to determine a customer's 'antic/indigenous people', the company must have a so-called genetic profile of these tribes. Reminiscent of ideas such as those held by Keller-Tarnuzzer, Rütimeyer and His, the Ur-folks are thus understood not primarily in cultural terms but in biological terms:

> iGENEA has specialized in the genetic origins of Europeans and can now genetically define numerous historical antic peoples. By antic peoples, we refer here to people groups from Antiquity who are defined not only by

> their own language, culture and history but also by their own DNA-profile. What is important is not the common linguistic ancestry or the historical-anthropological categorization, but the individual genetic characteristics of a people.[4]

Again comparable to cranial types, the genetic profiles of 'indigenous/antic peoples' make it possible to also make statements with regard to national constituencies. For example, the company has published statistics indicating that the populace of today's Switzerland represents the following percentages of *Urvölker*: 55 per cent Celts, 30 per cent Teutons, 10 per cent Jews and 5 per cent Slavs.[5] So, according to Gentest.ch/iGenea, the Swiss are a nation of mixed ancestry with a strong Celtic and Germanic influence. No big surprises here. Rather than being a revolution in Swiss identity, what used to be put in terms of 'Swiss blood or bone' is now referred to in terms of genes. But the notion of a certain biological heritage no longer comes along with the stereotyping of a people's temperament or potential – or does it? The term 'profile' must be misleading in this context. After all, as human population geneticists emphasize, in contrast to (the metaphor of) blood, the profile of the physiognomist, and the cranial shape of the phrenologist and racial anthropologist, the epistemic object of their science says nothing about capacity or character – not even about looks. The areas of DNA studied in the genetic analysis are (mostly) presumed to be without function and are referred to as noncoding or, more colloquially, junk DNA. In other words, the new method of reconstructing biological identity, kinship and history involves pieces of DNA that are believed to be unconnected to the phenotype. From this supposed phenotypic neutrality of the epistemic object, it is often inferred that the science and the knowledge it creates are also neutral (see Sommer 2008b, 2010; on epistemic objects, see Rheinberger 1997).

However, when Gentest.ch tapped into intra-Swiss issues of identity, the notion of the Ur-Swiss, the true Helvetians, (re)emerged – and it came with traits. The Swiss public TV series *Einstein* broadcast a show about the genetic difference between the inhabitants of the towns of Basle and Zurich. The goal was to find out whether the legendary rivalry between the two towns had a genetic basis. To this purpose, the programme had Gentest.ch/iGenea test nine men with a pedigree firmly based in each of the towns (five generations in Basle and Zurich respectively, Y-chromosomal and mtDNA analyses). The 'Ur-Baslesians' (*Urbasler*) turned out to belong mainly to haplogroup R who had entered Europe from Siberia some 25,000 years ago. The following ancestral percentages were established: 49 per cent *Rauriker* (Celts), 22 per cent Germanic tribes, 11 per cent Slavs and 6 per cent for each of the categories of Vikings, Jews and Phoenicians. In contrast, the 'Ur-Zurichians' (*Urzürcher*) were largely defined as descendants of haplogroup I who had entered Europe from the Arabic peninsula. Their DNA (or the fragments that were analysed) was made up of 50 per cent Helvetian (Celts), 33 per cent Germanic, 11 per cent Viking and 6 per cent Slav ancestry. These results were not only interpreted as documenting that the Baslesians and Zurichians indeed have very different origins. Because of the Helvetian ancestry, the (then) Managing Director of iGenea called the inhabitants of Zurich the original or indigenous Swiss (*Urschweizer*). This did more than fulfil the expectations these 'true' Zurichians had in the test. Despite its obviously bogus character (research questions, very small sample size, similar percentage of Celtic origin), the DNA test seemed to lend support to the mutual stereotypes as voiced by the men on the show: the people from Basle are among other things self-opinionated and those from Zurich are arrogant and without humor. Most importantly, the DNA show revived the myth of the Helvetian Celts as biologically distinct and as the indigenous Swiss people (*Schweizer Urvolk*).[6]

Gentest.ch/iGenea has dared to proceed even further with DNA testing as divinatory practice, to follow Stephan Palmié's (2007) interpretation. The media reported the company's claim that the heated nature of the soccer matches between Basle and Zurich could be explained by the Viking and Germanic genes – and it did not stop here:

> These militant genes can explain … 'the fighting spirit' in soccer. The Zurichians, on their part, have more Helvetian ancestors, who were engaged in trade early on – and thus laid the basis for the trading town of Zurich. According to the SF-experts, the greater Celtic share also allows an inference on why cutting-edge medicine is located in Zurich. The Celts are well known for their Druids, 'the top-physicians of old'. ('Die Gene sind an allem Schuld' 2008, www.heute-online.ch;[7] see also Rafi 2008)

Obviously, some of these 'biotribal attributes' are older than television. In fact, Keller-Tarnuzzer already identified the medical vocation as one of the – if general – Swiss characteristics, and it is interesting to compare the old descriptions of the Helvetian Celts as fearsome warriors who like to wear plaid with the somewhat comical image provided by Gentest.ch on the iGenea website (see http://www.igenea.ch/index.php?c=42&lp=66). Accordingly, Palmié's observation with regard to genetic anthropology also seems to be applicable to the pre-DNA history of the physical-temperamental determination of the Swiss: 'Genomics, like divination, gives material shape to, and thereby reproduces as social reality, the ideologies of invisible essences and agencies on which they are based' (2007: 207).

Although in these instances 'junk DNA' is far from unrelated to the phenotype, Gentest.ch/iGenea's genetic divination is most likely meant and understood as a practical joke. In case it would be taken seriously (possibly by a humourless Zurichian), Gentest.ch/iGenea, like other genetic ancestry companies, could point to the many places where it disclaimed racial, ethnic or national essences. In this respect, the article on Gentest.ch/iGenea in the magazine of the Swiss retailer *Migros* is telling. Under the again somewhat Keller-Tarnuzzerian motto of 'the blood that pulsates through our veins' ('*welches Blut in unseren Adern pulsiert*'), we are informed of the diverse ancestries Gentest.ch/iGenea has genetically established for the Swiss. The meaning of this on the individual level is illustrated by the figure of Renzo Blumenthal, an ex-Mr Switzerland. Blumenthal embodies the myth of the Swiss as a people of pristine peasants, shepherds or dairymen whose character is part and parcel of their way of life in the mountainous country. The ex-Mr Switzerland speaks the old language of Rhaeto-Romanic still found in parts of his alpine home region, the Grisons (Vella im Val Lumnezia), where he lives with his cows of the Swiss Brown breed. The Swiss tourism agency used the image of Blumenthal as a *Homo alpinus* to lure German women into Switzerland during the World Cup of 2006 that took place in Germany. The slogan 'Switzerland's most handsome man Renzo Blumenthal grins after milking a satisfied-looking cow' on Spiegel online is accompanied by a photograph of Blumenthal as pure 'Swissness' (retrieved 1 March 2011 from http://www.spiegel.de/fotostrecke/fotostrecke-13416-3.html). But iGenea has made out a Scottish ancestry (eleventh and twelfth centuries) for this essence of 'Swissness'. The myth of an original Swiss people à la *Homo alpinus* is here only evoked to be refuted. The subversion is wonderfully visualized in a photograph showing Blumenthal in a kilt and with pipes (see Figure 5.1). Furthermore, despite the DNA test, Blumenthal is a Scot by choice, because his maternal ancestry has been traced to German-speaking Europe for the same time period (Bieler 2007). That Blumenthal chooses to appropriate the Scottish identity must be attributed to the current Scottish ethno-hype as it is celebrated in films, at festivals, by music bands and in computer games (see Hesse 2008) rather than to a biological determinism associated with DNA testing.

Figure 5.1. Ex-Mr Switzerland Renzo Blumenthal Celebrates his 'Scottish Genes'. Photo © René Ruis, used with permission.

A similarly flexible and open engagement with genetic roots is for example evidenced by Philippe Welti, who was portrayed in the media as someone who had been convinced of a Latino ancestry, only to find out through iGenea DNA tests that his Y-chromosome is from Sweden and belongs to the Ur-folk of the Vikings, while his mtDNA makes it possible to trace him to Germany and to Germanic tribes. The most serious concern arising from this new identity is for Welti to decide whether he should now favour the Swedes and Germans at the European soccer games (Welti 2008).

With Welti and Blumenthal we have entered the sphere of personal genetic history and identity, which lie at the heart of the iGenea commercial services – even if these are never independent from the genetic profiles of groups such as 'indigenous/antic peoples'. The reactions of the two men to the unexpected test results seem quite representative of the average iGenea customer of which there are only several thousand in Switzerland. While Welti was disappointed in his attempt to find the genetic basis of his love for a warm climate, the sea, Italian cuisine and French wine, he was quick to link his haplogroup result to his interest in Islam and the Arabic world. Blumenthal, on his part, considered acquiring a couple of Scottish highland cows. Other statements from Swiss iGenea customers regarding the genetic determination of 'their indigenous people' are in a similar vein:

> To my great surprise, we learned through a DNA-Test that we are descended from the sea-faring Phoenicians. Moreover, we learned that our ancestors came from the modern-day Lebanon/Syria with their city states such as Tyre and Carthage, sailing to Italy, and must have migrated to Switzerland from there. It is really fascinating to find out that genes can tell us so much. It also seems personally fascinating to me that I always felt drawn to the Mediterranean as a child. Maybe there's more passed on in our genes than we think.[8]

> Many thanks for your rich answers and for my 'desired result'. It is somehow strange. Since I have been about 20 (now 38) I have been drawn to the North … my interest were growing more strongly towards the Vikings. Bought a lot of literature and somehow a curious familiarity arose at old Scandinavian sites. Perhaps the genes store more than we know.[9]

Like many other customers, these have internalized the metaphor of a historical narrative written into our DNA and have entangled the genetic identity and history with their autobiographical memory. The gene is here a mystical object, through which an individual can inscribe himself or herself into a fantastically present past (see Sommer 2008a, 2008b). Again, the flexibility and ease with which personal memories and information derived from DNA analysis are mutually accommodated suggest that there is nothing particularly unsettling about genetic history. Nor is it associated with the search for a Swiss biological essence – other than in an obviously humourous way. Rather, as the above quotes indicate, people combine ancestry tracing by DNA with other products from a genealogy and living history industry such as historical exhibitions, books and TV documentaries about history, historical novels, mythos films, historical (re)enactments and history parks. iGenea customers exchange information on such sources to provide the names of their 'indigenous peoples' with stories and to put faces on their DNA sequences.

For the same reason – i.e., the production of meaning and the tapping into the cultural/national memory – iGenea plays on the old myth of the original Helvetians, and the media ransacks the junk room of Swiss *Gebrauchsgeschichte*. They thus spice up the genetically derived numbers with bits and pieces of well-known stereotypes, such as the Helvetian Celts and the Swiss peasants and mountain people. But at the same time, the lake dwellers experience a new hype without the help of genetics. For example, in 2007, ten Swiss selected by Swiss public television withdrew to a reconstructed village of lake dwellers (Gemeinde Pfyn, Thurgau, thirty-eighth century BC) to try their hand at Neolithic sustenance. For four weeks, they engaged in a living science experiment under the close scrutiny of the TV viewers at home.[10] To give another example, the open-space museum Laténium on the shore of Lake Neuchâtel offers visitors an experiential and experimental grand tour through our history, from the Neanderthals via the Celts to the lifeworld of people in the Middle Ages. Here too, the lake dwellers play a special role. A temporary exhibition has recently been devoted to them and was reported in the Swiss media as news about 'our ancestors' (Büchi 2009). The exhibit and the accompanying catalogue introduce the curious into the magical world of their symbolic uses in Swiss history (Kaeser 2009).

Like Gentest.ch/iGenea's indigenous peoples, the lake dwellers – the history of the archaeological interpretation of whom actually shows a strong reliance on images of indigenous peoples from colonial settings (Kauz 2000) – are (re)enacted at the interface between past and present and science and public typical of a particular genre of the multimediated and commercially driven histotainment culture. While this kind of national and regional living history is currently booming in Switzerland, it is a far cry from a nationalist and racialist search for a 'Swiss biology'.[11] Indeed, for some people, including myself and a journalist of the Swiss newspaper *Tages-Anzeiger*, the genetically attributed identity remains without any meaning and consequence at all:

> So far, so good. But what does it mean for my future life? Does it help me cope with a possible midlife crisis? To whom do I have to feel connected, the Syrians or the Israelis? And on whose side should I stand in the Turkish-Kurdish conflict, according to my genes? Such questions are of course nonsensical. Their meaninglessness indicates of how little actual use DNA-ancestry tracing is to the individual. It does not constitute any reason for changing of one's life. (Zedi 2009, translation mine)

If taken too seriously, if applied to real personal problems rather than the shaping of avatars, if linked to the complexity of history rather than the simplicity of myth, if connected to questions of war rather than sports, the DNA game does not work.

Accordingly, the iGenea genetic tests are regarded as funny Christmas and birthday presents, as yet another cyberspace hype in the times of Facebook, where the company advertises in the following ways: chat with your genetic cousins found through the company's databank, exchange information on your genealogy and expertise of human population genetics with your virtual friends and enhance your genetic data with living history. In other words, the findings so far support assessments of the new genetics more generally along the lines of those of Nikolas Rose. Rather than a genetic naturalization of individual and collective essences, we find a personalized, flexible identity politics at work. Genetic identity and history here are not destiny – if anything, they are commodity and project (on genetic genealogy, see Rose 2007: 176–79; see also Rose and Rabinow 2006). This is also in agreement with the self-image of Gentest.ch, which regards iGenea as services to a lifestyle society in which the younger generations are no longer willing to spend time in libraries, not to mention archives. The line provides ready-made products that address the living history boom – a customized exciting past spiced up by means of DNA technology. The company explains its success on the basis of a hunger for individual roots and history which, although an anthropological universal, is aggravated in 'a world of nearly unlimited interconnectedness of persons, of globalization, of cosmopolitans' (Apter 2008, translation mine).

Despite the lightheartedness with which the tests are commonly greeted, a few voices in the Swiss media have been more critical. These have even induced a member of the Swiss Council of States, Luc Recordon of the Green Party, to submit an interpellation to the federal executive ('Verwendung von DNA-Tests für rassistische Zwecke'/'Usage of DNA Tests for Racist Aims', 3 March 2008). Recordon was particularly alarmed by the iGenea service for the genetic determination of Jewish ancestry. He challenged the scientific basis of the test, but especially pointed to the danger of empowering a meaningless racial term to the degree that people would be judged on its basis. However, the Swiss Federal Council did not feel alarmed. It did not want to prohibit genealogy tests and argued that ancestry determination by DNA is subject to existing legislation on the genetic analysis of humans in general. These regulations protect against any kind of discrimination on the basis of genotypes.[12]

Recordon's concerns regarding the Jewish ancestry test seem to represent a minority opinion. In Switzerland, the only really negative reaction came from the low-quality daily *20 Minuten* (its name, *20 Minutes*, is a fair indicator of its civic value). On its pages, the iGenea DNA analysis was referred to as *Judentest* and Johanne Gurfinkiel, general secretary of the Intercommunity coordination against anti-Semitism and defamation (CICAD), compared it to the practices of the *Ariernachweise* in National Socialist Germany (Melillo 2008). As soon as this news appeared on the online forum SideEffects, Gentest.ch intervened and claimed that the Jewish community was not alarmed. It is true that Gentest.ch had no negative publicity in the Jewish media such as *Tachles* and *Hagalil*; it might not be unimportant that one of the company's founders is Ashkenazi.[13]

The issue over the iGenea tests for Jewish ancestry already arose after a media report on the statistical contribution of different 'indigenous peoples' to the current German population provided by Gentest.ch. It first appeared in *Bild am Sonntag* and was widely taken up from there. The main topic of the *Bild* article was made obvious in its title: '*Deutsche Frauen sind deutscher als deutsche Männer*' ('German Women are More German than German Men'). The fact that this reads like a tautology is because there is no differentiation between the diverse uses of 'German'. In one case the term refers to current citizenship and in the other case to a genetic profile that has been associated with Germanic tribes. The ways in which the two meanings are used suggest that there is a true essence of 'Germanness' that rests on a biohistorical connectedness to a particular ancient people who inhabited the territory of today's Germany. However unconsciously or naïvely, notions of purity and otherness are here transported. Despite the fact that the ten per cent of Jewish ancestry found in the 'German samples' was interpreted as illustrating the entangled histories, one could easily interpret the article as saying that anyone who has German citizenship, but whose ancestry cannot be traced back to Germanic tribes, is not a real German. Here is a remark of an iGenea produced 'Germanic-descendant': 'I have received my result a few days ago. I would have been pleased by any result, Celt or Viking or whatever. But to have Germanic roots and thus to feel like an original inhabitant [*Ureinwohnerin*] is also appealing.'[14]

This problem lies at the heart of genetic ancestry tracing, the discourses surrounding which tend to emphasize the genetic insights into the diversity of today's nations/ethnicities and the complex genetic ancestries of living individuals, while there are also always instances where this 'old news' is simultaneously being subverted, even if only to produce a catchy media title. If one of the now genetically profiled 'indigenous peoples' who is shown to be part of the genetic makeup of a nation has historically been more closely associated with that nation's identity than others, the carriers of that profile might come to be seen as particularly representative of that nation. Furthermore, by only including in such studies DNA samples of people who give the country under concern as their place of origin, the percentages arrived at do not represent the actual current population of, let us say, Germany, but a utopian German nation cleared from more recent immigrations. Both points obviously also hold true for the statistics of the 'indigenous peoples of Switzerland' and the identification of the Helvetian Celts as the original Swiss people (for this problem in British genetic history and identity, see Sommer 2008a).

We therefore find replicated on a European scale what has been observed on a global scale. In the reconstruction of the history of humankind, human population genetics relies on indigenous peoples in the more common sense. Geneticists regard the gene pools of current societies whom they consider as historically isolated and little mixed, i.e., the aboriginal and insular peoples, and ethnic minorities, as more informative than those of industrialized and strongly admixed societies. A similar method is applied when in the attempt to arrive at the statistical composition of current European nations from antic peoples, biologists analyse those individuals they suspect of having a long pedigree in that country. However, when moving down the scale from a global to a European national, an interesting value reversal takes place. Cultural and social analysts have shown that the reconstruction of the family tree and history of all humankind goes along with a notion of the indigenous peoples, by means of whose DNA this knowledge is produced, as 'fossilized' – as if they were relics from past advanced civilizations (Reardon 2005). This long-established disparity between the people whose history is being reconstructed and the people who are the sources of this reconstruction shows some correlation with the north-south distribution of power and wealth (Sleebom-Faulkner 2007). Conversely, my discussion of Gentest.ch/iGenea and my work on other countries suggest that in Britain (Sommer 2008a), Switzerland and Germany, and as we will see in other states as well, 'indigenous' is the thing to be. At the same time, in the last Gentest.ch/iGenea example I now turn to, it becomes obvious that this kind of 'European (national) indigenousness' can be associated with territorial and political claims not unlike those of native tribes/indigenous peoples/ethnic minorities elsewhere (see, for example, TallBear 2008 for the case of Native American tribes; for an overview, see Sommer 2010).

My last example concerns young people with links to the Balkan nations, who make up a large part of Gentest.ch/iGenea's customers. Information about the genetics of these nations (percentage constitution of 'antic/indigenous peoples') and of such individuals created and provided by the company continues to provoke heated discussions on the respective iGenea-forums, so much so that entire threads have been closed. One particularly controversial piece of genetic information are the percentages of 'antic/indigenous peoples' of the (former Yugoslavian) Republic of Macedonia that Gentest.ch/iGenea put on the web platform. It indicates that today's inhabitants of the Republic of Macedonia have the ancient Makedonians as their main genetic ancestors. This was interpreted by some discussants as establishing the right of the EU candidate to the name 'Macedonia', a right that is called into question by Greece, which regards itself as the heir of the Makedonian history and contains a region of that name. However, according to Gentest.ch/iGenea, the current Greek population has only five per cent of antic Makedonian ancestry. Customers of Greek origin with connections to the Republic of Macedonia directed many questions to iGenea in an attempt to have genetics on their side in the issue of 'the real Macedonians'. In a similar way to the notion that today's inhabitants of Zurich are the Ur-Swiss because of a supposedly higher percentage of Helvetian origin, or that those Germans with Germanic roots are somehow more German than others, the allegedly considerable Makedonian contribution to the present population of the Republic of Macedonia became the defining element. In other words, even though according to the rhetoric of Gentest.ch/iGenea, genetics proves that there are no pure nations or races, it is at times one particular Ur-folk (*Urvolk*) that becomes identified with a populace. In one instance even the iGenea spokesperson wrote: 'Yes, a Macedonian can say that he [*sic*] is Makedonian originally … Only a DNA-analysis can provide us with an absolutely certain answer.'[15]

Although in the quote identity is individualized, the assumption remains that one genetic line of descent determines who a person is, or even who he or she is entitled to claim to be. Therefore, it does not come as a surprise that the discussions on the forums escalated at times and included mutual accusations of racism (one customer even referred to the Swiss anti-racism legislation). Instead of demonstrating an awareness that the genetic information provided by the company was being implicated in an ongoing identity-political controversy, the iGenea representative repeatedly warned the discussants (on this forum and elsewhere) not to engage in propaganda. Messages were/are censored on the grounds that iGenea, and genetics more generally, are apolitical! Exacerbated, one forum discussant pleads: 'Dear IGENEA, the issue is very serious and I beg for your cooperation. Will it or not the matter IS political and is being used thus.'[16] Indeed, the news about the genetic statistics and even the statement of the iGenea spokesperson quoted above have travelled beyond the iGenea sites to Macedonian webpages, where they are used as arguments for the legitimacy of the state, its name and its position in Europe.[17]

Obviously, the politicization of the genetic information does not begin with its commercial application through Gentest.ch/iGenea, it starts with the scientific study. The various statistics on the genetic makeup of current nations provided by iGenea are averages derived from published scientific sources. Even though in the case of Macedonia, iGenea refers to studies that compared the genetics of present-day Macedonians from mountainous regions and Makedonian finds from antiquity on its website and forums, when asking for the sources of the Macedonian data, I was mainly referred to Arnaiz-Villena et al. (2001) (something that also happened to other costumers asking the same question). This is a study carried out by the Department of Immunology and Molecular Biology of the Universidad Complutense, Madrid, and of the Tissue Typing Laboratory, Institute of Blood Transfusion, Skopje, Republic of Macedonia. They allegedly found that Macedonians belong to the older substratum of Mediterraneans (Iberians, North Africans, Italians, French, Cretans, Jews, Lebanese, Turks, Armenians and Iranians) and are not related to the geographically close Greeks, who, on the contrary, do not belong to this old stratum but show genetic affinity to Ethiopians (sub-Saharan Africans). The scientists concluded that:

> [t]his supports the theory that Macedonians are one of the most ancient peoples existing in the Balkan peninsula, probably long before arrival of the Mycaenian Greeks (10) about 2000 B.C. … Thus, it is hypothesized that there could have been a migration from southern Sahara which mixed with ancient Greeks to give rise to a part of the present day Greek genetic background … Indeed, ancient Greeks believed that their religion and culture came from Egypt. (ibid 2001: 125–26)

While this study belongs to the common sort that tries to prove that one Southeastern European country is more 'European than another' rather than constituting the source for the iGenea-statistics, it has incited further mutual insults on the forums. Some read it to say that 'Greeks are Africans and Macedonians Europeans'. It is significant that the historical scholarship the arguments draw on consists of encyclopaedias and compendia of languages and peoples as well as Penguin historical atlases.[18]

Despite all this, Gentest.ch/iGenea continues to distance itself from actual cultural and political contexts. But while the fact that iGenea sells a genetic kind of history may be of little impact for a customer such as Blumenthal, i.e., Mr Switzerland, the specific authority of a genetic definition can become a central factor in the assigning of a historically founded identity to oneself and/or others. This is certainly true for the (young) Southeastern European nations where history is more politicized (Schörken 1995: 107). Of course, Swiss national identity is not unproblematic either. On the contrary, we have been experiencing a controversy about what it means to be Swiss, particularly with regard to the politics of naturalization, immigration and asylum, that among other things revolved around offensive placard campaigns by the Swiss People's Party (SVP) – the party with the majority of seats in Parliament – beginning in the 1990s. The party used visual symbols such as skin colours and the Swiss passport to fuel anxieties about what they present as foreign infiltration and its consequences. More recently, the party has focused on animal symbolism. There were campaigns showing rats, a lion, a bear and lately black-and-white sheep and crows. The 2008 'sheep' campaign called for foreigners who have repeatedly been convicted of violent crimes to be deported after serving their sentences – hence the white sheep kicking the black sheep from the Swiss flag. The sheep motive has been taken up by far-right parties in other European countries, while the campaign has provoked shocked reactions in the national as well as international press, and the UN (United Nations Organization) correspondent for racism demanded the withdrawal of the campaign at the UN Human Rights Council (see, for example, Brauchbar 2007; Sciolino 2007; Vonplon 2008).

The 2009 'crow' campaign was directed against the ratification of the expansion of the freedom of movement and residence to the new EU members Romania and Bulgaria. It showed vicious crows picking at the territory of Switzerland rendered in the colours of the flag. Not surprisingly, it offended Bulgarians and Romanians, and prompted people from these countries living in Switzerland to send a letter of protest to the government. Such bad taste has lately fallen on fertile ground when the SVP initiative for a ban on mosque building has been accepted by the Swiss voters. Again, a visual hate campaign was part of the strategy, with minarets piercing the Swiss flag. To return to Gentest.ch/iGenea, even though, in contrast to Eastern European countries, individual and national 'Swiss identity' is not such an issue on the iGenea forums, the national statistics about genetic ancestry and the individual genetic tests relate to this political culture. In a political climate where crows come to symbolize immigrants living on and at the same time destroying the Swiss flag and territory – which in turn stands for 'Swiss values' and the socio-economic environment the 'real Swiss' have laboured for – the notions conveyed by some of the media coverage about Gentest.ch/iGenea and by the company itself cannot be entirely innocent.[19]

Everything is therefore not innocent play and many scholars interpret the situation less optimistically than Rose where the more general picture of the new genetics is concerned (see Squier 2007 for the critique of downplaying power relations structured along the lines of race, class and gender). Not only do they point to the uneven power relations between scientists and subjects of scientific research often at work in human population genetics, and to the fact that the different social positions tend to correlate with global north and south, they also see a (re)biologization of individual and collective identities at work. The scientific search for genetic profiles of populations is understood as a return to, or a modification of, an earlier – intermittently discredited – notion of human groups as biologically defined races (Ellison et al. 2008; Reardon 2008; for a general discussion of these issues, see Sommer 2010); one would obviously have to add to this nations, ethnicities, tribes, peoples, etc. That understandings of identity and kinship may in certain cases become more rigid through the introduction of genetics seems further corroborated by the so-called surname projects that are offered by many genetic ancestry-tracing companies:

> In a surname project men with the same or similar surnames are tested for biological kinship. In the course of time or migration, surnames may change considerably, so that common descent is no longer visible: for example, Howery and Hauri [a typical Swiss surname] … Vice versa, you can exclude persons with the same surname as not being part of your family.[20]

'Family' is here reduced to genetic markers linking male lines of descent. In this understanding of kinship, an exact match is fantasized between the social and the biological, achieved through a trimming of the (male part of the) family tree by means of DNA tests (see also Nash 2006).

Concluding Thoughts: What is New about Applied (Swiss) History after DNA?

Peter Weingart (2001) among others has described how the interconnections between scientific research, mass media and consumer groups have become increasingly more complex, with the ties to industries and politics being intensified. These fundamental institutional and epistemic transformations have been subsumed under 'the scientification of society' and 'the socialization of science' (or 'the scientizing of politics, economics and the media' and 'the politicizing, economizing and medializing of science'). While from the Renaissance onwards, patronage connected science with public concerns, throughout the nineteenth and twentieth centuries, state support of and control over the sciences vastly expanded. Conversely, political decisions have increasingly become informed by scientific expertise. This is especially the case for post-Second World War big science, for which an intertwining of basic research, located at universities, and applied research, driven by industry, has also been observed. These interdependencies have tightened the link between scientific innovations and contexts of social application (Weingart 2005; similar shifts have been identified as a change from Mode 1 to Mode 2 science by Gibbons et al. 1994).

Such trends can certainly be made out for human population genetics that is inherently entwined with questions of group and individual identity politics and has become commercialized in genetic ancestry tracing. And as the science is 'socialized', identity politics and identity markets are 'scientized'. In popular self-representations and advertisement, human population genetics tends to foreground the search for truth by means of hard, scientific methods. A notion of mechanical objectivity is betrayed by the emphasis on quantitative, technology-driven knowledge generation and on ('junk') DNA as the fundamental epistemic object (on the concept of mechanical objectivity, see Daston 2001; Daston and Galison 2007). DNA (often used interchangeably with the gene) is presented as the most authentic and informative historical document. In contrast to written documents, it is not mediated by the human mind. In this perception, the history in the gene has been written into the body by nature itself. As the most fundamental level of the organism, the DNA is seen to be closest to the transmission of a purely evolutionary history – even more so if the DNA has no cellular function (Sommer 2008b).

On the iGenea website, the instruction for sampling one's DNA is accompanied by an explanation of the method of analysis and by images of the lab apparatus, and the 'team of experts' is explicitly referred to in order to underline the professional, technology-driven scientific process.[21] Furthermore, Gentest.ch assumes that the European customers want to be able to retrace the scientific knowledge informing the commercialized DNA tests (an assumption that is confirmed by customers' enquiries on the forum). To this end, a bibliography of articles published mainly in the *American Journal for Human Genetics* is provided, on which the company draws for the genetic profiles of 'indigenous/antic peoples' and thus the genetic assignment of customers to one of these groups. The academic research with the highest quality control is therefore twice exploited: once in the DNA services and again in their marketing. Conversely, Gentest.ch estimates that the commercialization of this scientific knowledge from the public realm through institutions such as iGenea encourages further studies of the European genetic history and present, and the implementation of human population genetics within the European education system. Finally, the commercial sector is seen as offering novel career paths to geneticists.

Gentest.ch also makes use of the discourse of the gene as the most authoritative historical document: 'Techniques now available in the science of genetics enable us to re-examine these [historical] sources and test their veracity. Our genes contain information about our ancestors which, in contrast to that from the other sources, is error-free.'[22] In this understanding of historical genetics as 'molecular revisionism' (Palmié 2007: 208–10), the genetic approach may make it possible to verify or falsify a historical hypothesis, but genetic knowledge stands above and is independent from other expert areas: 'The result is absolutely reliable and correct and needs no interpretation from a historian or archivist' (Apter 2008, translation mine). The genetic approach is indeed perceived by some of its practitioners as a scientization of history and anthropology.

Such claims of truth and superiority can be questioned in many respects. In the case of the iGenea services, it is essential to keep in mind that the determination of the so-called indigenous peoples or *Urvölker* is problematic. Besides the fact that they may not have understood themselves in these terms historically and that the linkage between past peoples and cultures is often controversial within archaeology and history, a genetic profile can only be determined following the archaeological or anthropological definition. In other words, despite the claim that for the iGenea services, *Urvölker* are understood as genetic rather than historical-anthropological identities, there is a certain circularity involved. A genetic profile of an Ur-folk is arrived at by the analysis of ancient DNA from finds that have been archaeologically determined (or of living people supposed to represent the ancient group because of their relative isolation, language and other cultural parameters). However, once a genetic profile exists, it is seen as more fundamental than other kinds of information, so that a genetic analysis can from then on verify or falsify the archaeological determination of a grave as Celtic, for example.

The novelty in the ways in which science, politics and economy intersect is also linked to tendencies of globalization driven by communication and information technologies (see, for example, Thacker 2005). As we have seen, it is not sufficient to see Gentest.ch/iGenea as a Swiss company. The iGenea services are tailored to European customers, addressing people's interest in their country of origin more than in their country of present citizenship or residence. Furthermore, as a small company, Gentest.ch does not have millions of Swiss francs at its disposal to carry out research. As discussed above, the solution lies in the analysis and evaluation of genetic knowledge on European 'indigenous tribes' or *Urvölker* produced elsewhere, knowledge that is easily accessible because it is in the public domain and globally distributed (through online and print journals). Finally, the services of iGenea are not only restricted to one country but are aimed at the 'European market'. Gentest.ch has also secured the cooperation of the American company Family Tree DNA. Through this cooperation, iGenea gains access to the largest DNA database for genetic genealogy.

Family Tree DNA represents the commercial part of the Genographic Project initiated in 2005. This forty-million-dollar project, which is supported by the National Geographic Society, IBM and the Waitt Family Foundation, is carried out at different universities globally on the basis of geographical foci. It aims at reconstructing the complete history of humankind on the basis of the analysis of the genetic variability between indigenous and isolated peoples worldwide. The commercial part – realized by Family Tree DNA – on the other hand advertises its genetic services to information societies, the members of which are called upon to participate in the Genographic Project by having their DNA analysed for money. As another commercial link, the Harvard Professor for African and African American Studies, Henry Louis Gates, Jr., has cofounded the company AfricanDNA.com with Family Tree DNA to specifically cater to African-American customers.[23] AfricanDNA.com, Family Tree DNA and Gentest.ch/iGenea are thus part of a global network, while their products are tailored to a specific cultural context and historical background. This glocalized structure is grouped, one might say, around the digital genetic databank and is connected by virtual paths through the internet. But there are also paths of wetware in this bioeconomic exchange, because the samples from iGenea customers are sent to Family Tree DNA to be analysed in the U.S.A. (Sommer 2010). This last observation may also point to an omission in Weingart's areas of traffic: legislation. In fact, there has been an investigation by the senior public prosecutor into Gentest.ch's practices with regard to the privacy of data. When the substance (cheek swabs) travels from Switzerland to the U.S.A., is it accompanied by personal data? Gentest.ch denies this. It claims that even while in America, the samples and the genetic data are treated according to the more prohibitive Swiss law, and the authorities are satisfied.[24]

I have pointed to the diverse settings of application in which Gentest.ch/iGenea, AfricanDNA.com and Family Tree DNA are active; as we have seen, even within the narrower context of customers from Switzerland and Germany, there are people who perceive the genetic analysis as a new tool for self-(re)fashioning, and there are those whose (national) histories are controversial and for whom the genetic determination of origins and history becomes a serious arbiter in identity politics. Let me be clear: Gentest.ch does not attempt to find a Swiss (or German, Macedonian, etc.) genetic marker. It is not in search of the genetic essence of the Swiss or any other nationality. There is no genetic lake dweller or *Homo alpinus* test (or not yet?) that would identify a customer as (originally) Swiss. Rather, Gentest.ch, like human population genetics in general, emphasizes that genetics undermines the notion that there are pure peoples, nations or ethnicities. These are all historically grown, hybrid and open-ended entities. Paradoxically, however, a DNA test result for personal ancestry will nonetheless link a customer to one (maternal and/or paternal) ancient people such as the Celts or the Germanic tribes without reservation. The certificate the customer receives for his or her money does not state his or her haplogroup, indigenous people and country of origin in terms of probability, nor is it stated that only one particular line has been established. Furthermore, the company provides statistics indicating the makeup of twenty-first-century nations in terms of tribes from antiquity that already come with a considerable baggage of living history and mythology. And some of these are more closely tied to national identity than others.

Knowledge gained in human population genetics may play a special role in identity politics because of its claim on truth. In this respect, genetic history often demands prerogative over anthropology, archaeology, history, oral history and personal historical consciousness, even if this authority is not granted, as in the case of iGenea customers of Greek ancestry who fight the genetic knowledge about their personal origins and about the Greek and Macedonian populations. At the same time, the historical narratives and images that are provided with the genetic data or that are collected by customers to make sense of their results come from nongenetic knowledge funds. They are borrowings rather than the products of the independent aesthetic means of genetics, although the newest historical scholarship is hardly the source. The geneticization of history and identity goes along with a mythologization – a kind of biohistory kitsch that draws on an existing tradition of applied history (*Gebrauchsgeschichte*): we already have our myth about the Helvetians and the Celts more generally, and about the Vikings and other Germanic tribes.

Notes

1. Although the question is still on the website, it has become less prominent and has partly been modified to ‘Do you have Celtic, Teuton, Inka or Jewish ancestry?’ (for the main sites, see http://www.gentest.ch, http://www.igenea.ch and http://www.igenea.com, date accessed 3 March 2011; the original question can still be found at https://www.igenea.com/index.php?c=21&lp=16, date accessed 3 March 2011). This article is an elaboration of the shorter German text Sommer 2010b.

2. My analysis of iGenea is informed by an open interview with the then managing director of the iGenea product line carried out on 10 October 2008, the analysis of the ways in which the company represents itself and is represented by others in the media, as well as by cyberethnography (analysis of blogs, chatrooms, forums, news commentaries, etc.). In order to have access to the online databank and the biosocialities forming on its basis, I have also become a customer of iGenea (including email exchanges in the analysis).
3. The designation 'indigenous people' has initially been primarily used, but has been replaced – if again not consistently – by 'antic people'.
4. http://www.igenea.ch/index.php?content=49a&id=30, date accessed 3 March 2011.
5. http://www.igenea.ch/index.php?content=49a&id=30, date accessed 3 March 2011.
6. *Einstein*, 2008, SF 1, 1 May, 9 p.m. The documentary can be downloaded from http://www.sf.tv/sf1/einstein/sendung.php?docid=20080501, retrieved 3 March 2011.
7. Tuesday 29 April. Retrieved 3 March 2011 from http://www.igenea.ch/index.php?c=61&lp=48, translation mine.
8. http://www.igenea.ch/index.php?c=04, date accessed 3 March 2011.
9. iGenea-Forum 'Vikings', posted 17 June 2008, http://www.igenea.ch/index.php?content=132&st=147, date accessed 3 March 2011, translation mine.
10. 'Leben wie in der Steinzeit'/'Life in the Stone Age' 2007, SF 1, July/August 2007. See http://www.sf.tv/suche.php?&q=pfahlbauer&filter=1&start=10, retrieved 3 March 2011.
11. See also http://www.pfahlbauervonpfyn.tg.ch/xml_102/internet/de/intro.cfm, date accessed 3 March 2011. The big-brother genre in particular has gained popularity as a means of experiencing the Swiss past. Besides the lake dwellers, Swiss public television has choreographed a (re)enactment of life in the times of the Swiss author Jeremias Gotthelf and during the Second World War in a Swiss alpine bunker (Engelhard and Lichtensteiger 2009).
12. See http://www.parlament.ch/d/suche/seiten/geschaefte.aspx?gesch_id=20083641, date accessed 3 March 2011; Gut 2009.
13. See Apter 2008; the advert about iGenea, 'Herkunftsanalyse mittels DNA', on haGalil.com has not attracted any comments; see http://www.igenea.com/docs/hagalil/hagalil.htm, date accessed 3 March 2011; see also 'Deutsche Gene entschlüsselt. Eine Studie von Zürcher Gen-Analytikern zeigt: Jeder zehnte Deutsche hat jüdische Vorfahren', *Die Gemeinde* 613, offizielles Organ der israelitischen Kultusgemeinde Wien, January 2008. According to Gentest.ch, the test for Jewish ancestry was introduced after several customers had enquired about it.
14. http://209.85.135.132/search?q=cache:VqJpuAP4We0J:dev.igenea.com/index. The study carried out be Gentest.ch/iGenea shows that the DNA samples of women who self-identified as being of German origin can more often be connected to Germanic tribes than those of men (fifty per cent versus six per cent; unpublished study based on 19,457 German samples from the iGenea database). The statistics on the constitution of the German population published in the same article indicates that ten per cent of Germans are of Jewish ancestry. In the *Bild* report, Salomon Korn, Vice-President of the German Central Council of Jews, explains the great contribution of haplogroup J, to which it is estimated that forty per cent of today's Jews belong, to 1,700 years of Jewish presence in 'Germany' (Böger 2007; see also Mischke 2008). Online commentaries about this article show the ability of people to see the nonsense in the claim about 'German men and women'. They also document indignation about the 'Jewish genetics' and the fear of a resurgence of race theory, the biologization of ethnicity or the stigmatization of the Jews (see, for example, http://www.igenea.com/docs/welt_1107.html, date accessed 3 March 2011; http://altesitte.wordpress.com/2007/11/27/nur-wenige-deutsche-sind-echte-germanen,

date accessed 3 March 2011). This is not the place to do justice to the very complex and diverse issues surrounding the population genetic research on the Jewish diaspora and its commercialization. The reader is referred to Kahn 2005; Olson 2002: 106–19; Parfitt and Egorova (2006); and Abu El-Haj (unpublished manuscript).

15. 'Ex-Jugoslawien/Mazedonien/Serbien/Kroatien/Albanien/Montenegro/Bosnien' online forum, posted 15 February 2008, retrieved 3 March 2011 from http://www.igenea.ch/index.php?content=132&st=25, translation mine.
16. 'Macedonia' online forum, posted 27 October 2008, retrieved 3 March 2011 from http://www.igenea.ch/index.php?content=132&st=273.
17. See, for example, 'Gentests bestätigen Verwandtschaft zu antiken Makedonen', News from Macedonia, http://www.pelagon.de/?p=306; http://www.canka.de/links/links.html; Fussballverein Makedonien, http://www.fvmakedonien.com/fvm/?p=95; http://www.readers-edition.de/2009/04/13/wie-griechisch-waren-die-antiken-makedonen, all accessed 3 March 2011. For a counter-reaction, see, for example, the film on YouTube, http://www.youtube.com/watch?v=oHn7M3BAD44, date accessed 3 March 2011. iGenea is also a topic and guest on the Balkan and Mazedonian forum, http://www.balkanforum.info/f45/bosnier-illyrer-32489, http://www.mazedonien-forum.de/thema.php?id=72194, all accessed 3 March 2011 (for more information, google 'iGenea Mazedonien' or similar combinations).
18. The study is based on the Human Leukocyte Antigens (HLA) system (histocompatibility). The Macedonian samples numbered 172.
19. For an interview with the Swiss Federal President touching on the 'sheep issue', see http://www.eda.admin.ch/eda/de/home/dfa/head/iviews/interv/interv15.html; for more media coverage, see, for example, http://www.20min.ch/print/story/11309737, http://www.nzz.ch/nachrichten/schweiz/aktuell/uno-rassismus-berichterstatter_fordert_rueckzug_von_svp-plakat_1.555199.html, http://www.rhetorik.ch/Aktuell/07/07_16/index.html; for a blog on the placard-campaigns, see http://plakat.svp-politik.ch, all accessed 3 March 2011.
20. http://www.igenea.ch/index.php?c=13&lp=69, date accessed 3 March 2011.
21. http://www.igenea.ch/index.php?c=903&lp=21, http://www.igenea.ch/index.php?c=12&lp=2, date accessed 3 March 2011.
22. http://www.igenea.ch/index.php?c=48, date accessed 3 March 2011.
23. http://www.africandna.com/history.aspx, date accessed 3 March 2011.
24. Other issues are involved here. For example, according to Swiss legislation regarding genetic analyses of humans, samples have to be taken by physicians and the identity of the person sampled has to be verified. iGenea customers take their samples themselves in the privacy of their own homes. But Gentest.ch has mainly been accused of not rendering the genetic samples and data anonymous and handing both on to the U.S. company without consent of the customer, where it enters the Family Tree databank, again without the consent of the customer. This would be a breach of the privacy of data protection. Gentest.ch has reacted by having customers send their data directly to Houston. (Hostetter 2009, 2009b, 2010).

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6

Irish DNA

Making Connections and Making Distinctions in Y-Chromosome Surname Studies

Catherine Nash

Introduction

In January 2006 a new research paper on the human population genetics of Ireland was widely reported on in newspapers in Ireland and the U.S.A. The headline of the feature in the *New York Times* – 'If New York's Irish Claim Nobility, Science May Back Up the Blarney' – was based on the claims that 'about one in 50 New Yorkers of European Origin – including men with names like O'Connor, Flynn, Egan, Hynes, O'Reilly and Quinn – carry the genetic signature' (Wade 2006) linked to a fifth-century Irish high king, Niall of the Nine Hostages, whose large number of descendants are thought to be evident in the high proportion of men with this 'signature' in northwest Ireland. The authors of the research paper, published in the *American Journal of Human Genetics*, argued that a 'previously unnoted modal haplotype that peaks in frequency in the north-western part of the island … shows a significant association with surnames purported to have descended from the most important and enduring dynasty of early medieval Ireland, the *Uí Néill*' (Moore et al. 2006: 334) – a dynasty that included Niall of the Nine Hostages.

The research also reached a more specialized audience. Members of the online discussion list IRISH-DNA, an email forum for discussing the use of genetics in genealogy and, in particular, in research on Irish ancestry, hosted by RootsWeb.com, alerted other members to the findings.[1] The research also quickly featured on the website of the U.S.-based company, Family Tree DNA, one of the largest and most successful commercial providers of genetics tests for genealogy, which heavily promotes the use of Y-chromosome tests in surname studies including, but not limited to, those focusing on Irish surnames. Potential customers are encouraged to order a test to see if they 'match the profile' of the *Uí Néill* signature. The U.K.-based company Oxford Ancestors has similarly used the results of the research paper to offer a Y-chromosome test that will explore whether a male customer is descended from the 'High Kings of Ireland'.

This case strikingly demonstrates the close relationships between research in human population genetics and the relatively recent but rapidly expanding commercial sector of genetic genealogy whose discourses and commodities bring together the domains of 'science, profit and kinship' (Marks 2007: 233). Since 2000 a growing number of companies in the U.S.A. and the U.K. sell direct-to-consumer genetics tests for use in personal ancestry tracing via their company websites. Like the increasingly digital domain of conventional genealogy, in which genealogical sources and contacts can be accessed online, these companies use these new information technologies as well as the technologies, methods and research findings of human population genetics as they seek to build on the popularity of reconstructing family trees and family histories. They appeal especially to those whose genealogical searches are for knowledge of where their ancestors originated in Europe, or in Africa for African Americans and Black British people whose ancestors were enslaved. Many genetic genealogy companies were initially established by enterprising human population geneticists who saw the potential commercial application of new technologies, databases of information on patterns of human genetic variation and interpretative techniques. New products are rapidly developed in response to the publication of new research, such as those tests for particular Y-chromosome haplotypes that have been linked to well-known historical figures. Oxford Ancestors, for example, has also made use of recent research on Y-chromosome genetic variation in central Asia (Zerjal et al. 2003) to offer a test to explore whether a male customer has a genetic profile that suggests his descent from Genghis Khan.

Genetic surname projects, which compare the Y-chromosomes of men sharing surnames, have developed as a commercial application of recent work in human population genetics in which the correspondence between traditionally patrilineal inheritance of surnames in much of Europe and in European settler societies, and the direct inheritance of the Y-chromosome from father to sons is a focus of investigation in itself or used a sampling device. This is a particular strand of wider research on human genetic variation through Y-chromosome haplotype mapping, whose applied use in exploring the genetic relatedness of men sharing surnames and of establishing the Y-chromosome haplotypes of specific surnames has been framed by claims about its usefulness in criminal investigations as well as family history research (Jobling 2001; Jobling and Tyler-Smith 1995; Sykes and Irven 2000). It has been taken up enthusiastically by those already interested in genealogical projects focused on single surnames alone and by genetic genealogy companies both encouraging and serving this interest. These links between research laboratories and commercial testing services are part of the online and transnational geography of genetic genealogy, which for many consumers in North America is centred on finding roots in distant places of origin and on making connections with others on the basis of shared ancestry across geographical distance.

But the flow of influence is not one-way. Studies of geographical patterns of human genetic variation are part of, and are often framed by, wider interests in questions of personal and collective origins. Many human population geneticists pursue research that they suspect may capture the popular imagination and enhance their academic as well as their popular reputation through its wide dissemination beyond the academy. But their work is shaped by wider sociocultural interests and ideologies at a deeper level. This means that studies of human genetic variation, difference and origins have a close, if not uncontested, correspondence with historically and geographically specific, but naturalized interests in human difference and differentiated, as well as collective, human origins that are entangled with ideas of nation, ethnicity and race.

This chapter considers the nature and implications of genetic surname studies through the specific case of collective projects to use Y-chromosome tests to explore degrees of relatedness among group participants sharing Irish surnames and the geography of ancient Gaelic clan groups. Despite the media attention to the case of Niall of the Nine Hostages, this is not the strand of genetic genealogy that has received the most publicity or critical interest. These genetic surname studies are less culturally and politically loaded than the prominent television features and newspaper accounts of African Americans or Black British people being given the results of genetic tests which suggest ancestral connections to particular ethnic groups and ancestral homelands in Africa, with all the emotive and potent resonances of the restitution of knowledge destroyed by the enslavement of their ancestors (see Chapter 7 by Schramm in this volume).[2] In contrast to the suggestions that the results of genetic tests can at least partially assuage the erasure of culture, language, home and name through enslavement for those with slave ancestors, Y-chromosome surname projects start with a known name and usually some knowledge of a European country of paternal origin.

Yet genetic surname studies are a significant dimension of genetic genealogy as a business and personal pursuit. At the time of writing, the website of Family Tree DNA states that they support 5,223 Y-chromosome group projects.[3] One of the main popular guidebooks on the use of genetic tests in genealogy suggests that surname projects are the most common application of these tests (Smolenyak Smolenyak and Turner 2004: 57). They also deserve attention because they are an aspect of the sector and practice that appears to be relatively distant from the direct deployment of ideas of genetically identifiable racial or ethnic ancestry or origins, but whose reckoning of relatedness via genetics intersects with the wider problematics of constructing collective identities – national, ethnic, racial or diasporic – via genetic similarity and difference. Focusing on what are less likely subjects of critique and exploring how their apparently uncontroversial nature actually underscores their significance in generating, as I will argue, problematic ideas of national and diasporic genetic communities of descent extends the growing critical engagement with genetic genealogy (Bolnick et al. 2007; Nash 2005, 2006a, 2007; Palmié 2007). The starting point of these projects are patrilineally inherited surnames rather than a potentially genetically identified ancestral or ethnic origin, but, as I will argue, they often appeal because of their promise to deliver knowledge of ancestral origins in specific places, as well as senses of collective identity in newly geneticized communities of descent. Though they are a distinctive dimension of genetic genealogy, they also need to be understood in relation to the ways in which genetic genealogy companies frame their services in terms of individual self-knowledge, collective identity and relatedness, ethnicity, gender and ancestral origins more widely.

Genetic Genealogy: Comparing and Connecting

The questions of 'Who you are?' and 'Where do you come from?' that are used to promote and naturalize genetic genealogy evoke ideas of personal and collective identity and self-knowledge. The marketing of genetic tests for ancestral knowledge relies heavily on the positive associations of popular genealogy as a personally significant, restorative and rewarding exploration of the past, on wider discourses of the value of a historical consciousness and on individual responsibility to understand oneself psychologically, emotionally, medically and, increasingly, genetically (Novas and Rose 2000; Rose 2001). Not knowing the information that genetic tests can offer is presented as a new form of lack or 'genetic ignorance' that needs to be filled or addressed through these new services. In the world of genetic genealogy, knowing your genetic profile (at least in the very partial sense of these tests) is presented both as a natural component and technologically enhanced form of individual self-knowledge. New genetic knowledges and the geneticization of ideas of personal and collective identities are thus cloaked in the generally progressive associations of popular historical knowledge and the cultures of self-exploration and self-help, as well as the authority of science.

But these commodities are also framed by one potent narrative of loss and recovery. Tests that offer to answer questions of specific places of origin in Africa for the descendants of enslaved Africans are framed by the intensely political and personal significance of restored ancestral knowledge and recovered sense of origin and connection (see Schramm, Chapter 7 this volume). The marketing of genetic genealogy more widely draws on this specific history of violent displacement, traumatic loss and recovered knowledge to generate a more general condition of lack and incompleteness in those whose ancestors were not enslaved African people. New or intensified desires for genetically verified accounts of origin and ancestry can be promoted by implying that knowing something of where you ancestors came from is not enough, and that a new but natural desire for knowledge of 'deep ancestry' can never be fulfilled by conventional genealogy. Historically and culturally specific narratives of loss are used to extend ideas of genetic ignorance and naturalize ideas of genetic self-knowledge, which are simultaneously given more meaning through ideas of ethnicity – of shared ancestry, origins and relatedness.

Family Tree DNA offers tests that are not directly linked to any category of collective identity beyond the familial, but that can be used to prove or disprove the supposed but unverified relatedness of individuals within a conventional genealogical project, at least in cases of direct maternal or paternal descent. However, like other genetic genealogy companies, they also offer a range of ways in which the alpha-numerical, and on their own meaningless, results of an individual's test, can be made more meaningful. Concepts of race, ethnicity and a particular historical and geographical imagination of human migration and origins are central to this. While the work of human population geneticists on the prehistoric and historical geographies of human migration encompasses the earliest movements and subsequent spread of humans from Africa, and while genetic diversity is widely recognized as geographically graded, their work often also evokes a model of the world in which human groups had settled in relatively genetically discrete homelands until the migrations of the last four centuries muddled the patchwork geography of genetically differentiated human groups. So, while within the logic of genetic descent, Africa is ultimately the place of origin of every individual, genetic genealogy plays on the popular idea of an old world of places and groups as relatively neat packages of genetic distinctiveness. Companies evoke an idea of global genetic unity – and this works to position them on the side of liberal anti-racism – and the idea of differentiated origins. Thus, Family Tree DNA, for example, invites potential customers to explore their African, Native American or Jewish ancestry. Like other companies involved, Family Tree DNA invokes a direct correspondence between the pattern of markers on particular segments of Y-chromosomes and mitochrondrial DNA and ethnicity by offering tests for specific ancestral heritages. As other critics and commentators have argued (Elliot and Brodwin 2002; TallBear 2008), linking genetics to ethnicity in geneticized genealogy both corresponds to popular understandings of ethnic groups as shared communities of descent as well as culture, and problematically reinforces ideas of the significance of genetic similarity, and the genetic basis of ethnic or racial categories in contrast to more flexible and inclusive understandings of collective identity.

But Family Tree DNA also encourages those who do not suspect or seek genetic confirmation of Jewish, African or Native American ancestry to use the tests to explore their ancestral or geographical origins themselves and to use them as ways of discovering meaningful connections with those who share similar results. They invite customers to contact others with similar results, with whom they can work together to attach ethnicity or geographical origins to the numbers and letters that constitute test results. They can do so by joining online databases of 'genetic cousins', by looking at the locations named as places of ancestral origin by other people with similar results, or by corresponding with those who are 'genetic matches'. While companies like Family Tree DNA claim to identify specifically named ancestral groups for some customers, and this is undoubtedly a commercially effective way to encode the alpha-numerical individual test results with meaning, they also invite others for whom African, Native American or Jewish ancestry tests are of no use or interest and who are thus not otherwise constituted as part of the company's customer base, to come to similar conclusions about the results of their tests but by themselves, or at least by themselves in interpretive alliances with other customers. Even if not directly framed by ideas of race or ethnicity, geneticized genealogy foregrounds genetic relatedness as central to personal and collective identity, and genetic similarity as the basis of senses of empathy and connection. Much is made of the supposed senses of meaningful connection between people who discover they are genetically similar and the satisfactions and rewards that these new relations bring. This does not depend on ideas of race or ethnicity but does suggest that genetic or biological similarity and dissimilarity is the basis of empathy and antipathy between people.

Genetic surname projects are one aspect of this guided but customer-led production of personal and collective meaning from comparisons of Y-chromosome test results among men sharing surnames and thus suspecting some degree of paternal relatedness. By encouraging people to join or establish surname projects using Y-chromosome tests, the company's customer base can be considerably expanded to include all the many potential consumers among the many in the U.S.A. and Canada already exploring their genealogical links back to different parts of Europe. Alone their results mean very little, and for those who already know the general country of origin of their emigrant ancestry, they add little to existing knowledge of where their ancestors came from. Using his results alone, a man, for example, may be told his paternal origins are broadly European. Group projects are ways of selling tests on the basis of the potential of collective results to say much more. Linking particular Y-chromosome profiles to named historical figures suggests that Y-chromosome surname projects could also offer customers more specific, distinctive and special ancestral connections.

Emphasizing the parallel between the direct transmission of the Y-chromosome between fathers and sons and patrilineal surname patterns is one way in which these companies draw on existing cultural tropes or traditions to naturalize what are quite particular modes of understanding ancestry and relatedness. Most genetic genealogy companies offer two types of test, one based on the direct paternal inheritance of distinctive forms of the Y-chromosome from fathers to sons and only applicable to men, and mtDNA tests that are also based on direct inheritance and that establish direct maternal lineages that can be undertaken by men and women. Both focus on a very limited portion of any individual's ancestry, and their selectivity and partiality runs counter to many people's contemporary genealogical interests in both maternal and paternal 'sides' and not just in direct lines of ancestry. The selectivity and partiality of both models of ancestry is also elided in claims that it is the ability to trace direct maternal or paternal lineages that makes it possible to establish a link to 'deep ancestry' and to specific places and ethnic groups. It is their very selectivity which makes them effective. Yet, while ideas of ethnic or geographic origins are undoubtedly central to attempts to construct these commodities and the knowledge they produce as desirable and even necessarily fundamental to selfhood and identity, the idea that descent and identity can be traced through direct maternal lines if you are a woman or through direct maternal lines and paternal lines if you are a man still has to be made obvious, natural, ordinary. Despite the development of autosomal tests, genetic genealogy remains dominated by mtDNA and Y-chromosome tests, and central to these services is a simply gendered differentiation. Men can undertake the two sorts, while women can only undertake one sort. And central to the marketing of these tests is the effort to make a genealogical tree composed of a single maternal line for a woman and two lines – maternal and paternal – for men appear as a taken-for-granted model of ancestry and descent, in contrast to the conventional thicket of lineage in ordinary documented, partially documented or imagined and endlessly ramifying family trees.

In the case of the Y-chromosome, a single paternal lineage is naturalized in many accounts by its correspondence to the convention of paternally inherited surnames and all the assumed natural significance of bonds between fathers and sons, and in the case of mtDNA by invoking a similarity naturalized and universalized version of the mother-child relationship (Nash 2004). Maternal lineage can be invested with more specific symbolism in the context of the use of mtDNA tests to identify specific ancestral locations in Africa for African Americans and other members of the Black diaspora. As Katharina Schramm discusses in Chapter 7 in this volume, the focus on maternal descent is framed by the company African Ancestry and by consumers by the idea of loss of a mother as a metaphor for the violent severing of social and kinship ties through enslavement. Yet, despite the symbolic potency of the ideas of a mother-child bond torn apart and remade, for some the particular value of Y-chromosome tests in surname studies is that they allow an additional selectivity. This is because they not only avoid the problem of the infinitude of ancestors that can never be known by focusing on direct paternal descent alone, but they also overcome the infinitude of possible comparisons of test results with other genetic profiles that might give them meaning by identifying men with the same patrilineally inherited surnames as the members of a pool of potential comparisons and connections.

Companies like Family Tree DNA encourage customers to identify with those who share their mtDNA profile by inviting them to submit their results to and contact other 'matches' on the company mtDNA searchable customer database *mitosearch*, and in the case of Oxford Ancestors, to identify with mythologized maternal clans. This mirrors the service Family Tree DNA provides for men with Y-chromosome results – *ysearch* – with one significant difference: *ysearch* is searchable by surname as well as Y-chromosome result.[4] Not all Y-chromosome matches will share surnames, but sharing a surname means the possibility of identifying those who can collectively compare their Y-chromosomes and use them to work out degrees of connection and then reconstruct accounts of the origin and spread of their surname. For Chris Pomery (2007), author of one prominent popular guide to genetic genealogy published by the British National Archives, this makes Y-chromosome surname studies by far the most effective use of genetics in family history. While companies like African Ancestry describe an individual's mtDNA result in terms of an ethnic group and location by comparing it to samples in their databases based on surveys of genetic diversity in Africa, mtDNA 'matches' among Family Tree DNA's customers are not linked by pre-existing assumption of relatedness via a shared patrilineal surname. While much more could be said about the gendering of genetic genealogy and gendered discourses of human population genetics (Nash forthcoming), I am particularly interested in exploring how Y-chromosome genetic tests shape understandings of connection and difference within groups formed around shared interests in a particular surname and its historical and cultural associations, and within groups that are being newly established to undertake genetic surname projects. The parallel between the transfer of patrilineal surnames and Y-chromosomes also means that these projects are often focused on the relatively recent period since surnames were established, rather than the more temporally distant and generalized historical geographies of broader descriptions of Y-chromosome and mtDNA haplogroups. The regeneration of the significance of patrilineage via ideas of direct Y-chromosome descent, as I will argue, makes a particularly masculinist version of ancestry also an exclusive model of ethnicity, national and diasporic belonging.

Among the 'success stories' of Y-chromosome projects that Pomery (2007: 184–89) features, is his account of 'The Irish Clans', a research project not in this instance organized by amateur enthusiasts, but by the geneticists from Trinity College Dublin whose work reached the public through the Niall of the Nine Hostages story. But this research was shaped by wider interests in surnames in Ireland and in the Irish diaspora, and is being made use of in new and existing genetic surname projects. This chapter focuses on this case of the traffic between academic research and commercial laboratories, between scientific journals and online collectives of enthusiasts, and a geography of genetic genealogy in which Ireland is a central node in a diasporic imagination of connection and shared descent. Using online discussion boards and project websites as sources, as well as selected interviews with scientists, enthusiasts and participants, it explores the models and more specific accounts of origins and relatedness adopted in and produced through these projects and their implications for wider understandings of difference and connection, nation and diaspora. It is this question of consumption, of what people make of these new sources of personal and collective genetic information, that is central to the arguments of those who foreground the active ways in which people engage with new forms of biological knowledge and respond to new developments in the biosciences that are disrupting the stability of foundational categories like nature and culture (Skinner 2006, 2007), and caution against interpreting the development of this sector in terms of its reductive and potentially divisive discourses of geneticized relatedness (Wade 2007) and question the authority of academic critics to decide in advance on the social or political implications of their popular use (Brodwin 2002). Here I consider how one particular category of ethnic identity is reconfigured through the practices of making connections and making distinctions in Irish genetic surname projects. Doing so involves considering these practices of categorization and differentiation in relation to historical and contemporary forms of collective identity and difference based on ideas of shared ancestry and origins in Ireland, Northern Ireland and the Irish diaspora. In the rest of this chapter I consider these practices in relation to the production of new forms of knowledge and relatedness for project participants, and then address the wider implications of their focus on direct paternal Gaelic ancestry for the politics of Irish identity and belonging.

Diasporic Distinctions

Genetic Irish surname projects represent one particular strand of geneticized genealogy and a particular aspect of the culture of Irish diasporic genealogy. They are constituted through a network of individuals, transnational associations, research institutions and commercial laboratories, through which scientific and popular knowledges are produced and consumed. The flow of knowledge is not simply outwards from the domain of science to society. In the case of genetic Irish surname project, this is apparent in specific relationships and connections as well as the embeddedness of science in society more deeply. The Smurfit Institute of Genetics in Trinity College Dublin does not provide commercial genetic testing services but, as the case of the *Uí Néill* paper illustrates, their research findings have been utilized by Family Tree DNA in encouraging a market for these tests, and by individuals and groups involved in Irish genetic surname studies. Key individuals have also played a role in the development of this strand of Irish genealogy. Patrick Guinness, of the Guinness brewing family in Ireland, has been a central figure in supporting the work of the Smurfit Institute, encouraging interest in their work and informally advising other enthusiasts. Having already explored the origins of the Guinness family through conventional documentary genealogy, he contacted Daniel Bradley after the publication of a research paper on the human population genetics of Ireland using surnames and Y-chromosome analysis published in *Nature* in 2000 (Hill et al. 2000) prompted his interest in the wider potential of the new genetic techniques. He subsequently funded the doctoral research of Brian McEvoy on the genetics of Irish clan groups because of his interest in the Guinness family origins and in the genealogical relationships between Gaelic Irish clans more widely.[5] It is this work that Chris Pomery celebrates as an example of genetic genealogy using surnames and Y-chromosome tests. Patrick Guinness has also been active in the Irish government-funded organization Clans of Ireland Ltd., an association that grants official status to Irish clan societies and supports their activities in helping others begin and conduct Irish surname projects. Similar to Scottish clan societies, most Irish clan societies are focused on specific Gaelic clans linked to a specific region in Ireland and a specific surname, such as O'Brien or O'Neill, now widely held but originally linked to the clan's nobility. They function as networks of enthusiasts linked by newsletters, websites and periodic clan reunions in Ireland and Northern Ireland. Most members either bear the clan surname or have a close ancestor who did so and identify with an Irish clan as descendants of Irish emigrants for whom the clan is one dimension of their sense of Irish ancestral affinity in the culture of Irish diasporic identity in the U.S.A., Canada, New Zealand and Australia. Clans of Ireland Ltd. currently lists twenty-eight 'yDNA Projects' being undertaken by registered Irish clans. But many other Irish surname projects are being undertaken by new groups formed for the purpose of the project who largely communicate via email and are represented through project websites.

The family trees of the descendants of nineteenth-century and earlier Irish emigrants reflect generations of intermarriage between Irish and other migrant groups that could suggest multiple ethnic origins for those that now identify as being of Irish descent. In contrast to these entangled family trees and multiple ancestral places of origin, genetic projects focusing on patrilineage seem to offer a precise point of origin and single lineage. For members of Irish clan societies, this interest in using genetic tests of this sort to explore Irish origins and descent is framed by the attractive associations of Irishness in general but also the appeal of genetically establishing distinctive descent from particular named and often noble, ancient Irish families.

Genetic genealogy, like genealogy in its conventional forms, is always simultaneously a practice of making connections and making distinctions – differentiation as much as collective identification. In avowedly multicultural societies such as the U.S.A., genealogy can be a way of making distinctions between groups based on group origins and descent, and thus marking a collective ethnic difference and identity, such as Irish-American. But it also often entails establishing special sorts of distinctive diasporic connections that differentiate within that community of shared descent. Being able to claim descent from an ancient noble Gaelic lineage may be more appealing for some than just sharing Irish origins. For some, these new genetic surname projects promise a scientific verification of this distinction, though in practice these projects do not necessarily confirm noble descent in this uncomplicated sense. So what do they involve and what sorts of accounts of origins and relatedness do they produce?

While many Irish genetic surname projects are framed by the prospect of having a scientifically proven connection to an ancient noble Gaelic lineage that reflects both the appeal of Irish ancestry and the appeal of having a distinctive ancestry within the broad category of diasporic Irishness, these projects also involve making distinctions within groups who are linked by their sense of connection to a specific lineage. One fundamental distinction is between men and women. Only men can be involved as tested participants, since the projects are based on Y-chromosome tests and a considerable number of the exchanges in online discussion lists are devoted to explaining to women who are interested in the new techniques that the tests and the studies focus on male genetic lineages alone. So, while the Irish clan associations are usually open to women as well as men, women cannot be directly involved as participants in Y-chromosome genetic surname studies which effectively render clan descent and, by extension, Irish diasporic descent as fundamentally patrilineal. In contrast to recent efforts to challenge the marginalization of Irish women's experiences of emigration and address the ways in which ideas of mobility and staying put have been conventionally gendered (Gray 2004; Walter 2001), Y-chromosome genetics endorse a system of ordering relatedness in which women are fundamentally subsidiary. Companies and project coordinators encourage women interested in the projects to have a brother, father or paternal uncle tested and many women are involved in projects in this way. Chris Pomery's (2007: 16) view that the impossibility of women's direct involvement is simply a biotechnical fact rather than being underscored by any more problematic version of ancestry is representative of the way this issue is usually commented upon. Yet the recent greater inclusion of women in clan associations is undermined when, for example, a woman elected as honorary chief is overlooked in attempts by population geneticists pursuing surname-based studies to gather genetic samples at clan rallies. The use of the Y-chromosome may accord with old conventions of patrilineage but out of step with the much more contested dynamics of gendered social relations.

However, these studies also differentiate between men. They involve comparing the Y-chromosomes of men who share surnames in order to fulfil the project's aims to establish a genetic profile for a surname or clan group and for known or newly discovered distinctive subgroups or branches, and to genetically confirm, revise or refine existing maps of the regional distributions of Gaelic surnames in Ireland. Some projects seek to establish the genetic profile that corresponds to direct descent from a specific noble Gaelic lineage and degrees of closeness to that lineage among participants. Yet the projects are mostly framed by their usefulness in providing knowledge of specific regional places of origin in Ireland rather than simple proof or disproof of noble descent. A new genetic 'atlas of Ireland' would allow a man with an Irish name, and thus assumed paternal Irish ancestry, but with no knowledge of where in Ireland his ancestor came from, to locate a place of origin in Ireland. This place of origin is not the place an ancestor left behind but the regional home of a clan in a more ancient sense. The projects are thus much less about partially knowable individuals and places of origin, which are the focus of conventional genealogical projects, and much more about a 'deep ancestry' that is presented as more fundamental. Echoing the idea of uncertainty of origins in accounts of the African diaspora, the McMahon Surname DNA study introduces the project in this way:

> Many of us whose ancestors emigrated from Ireland are uncertain where we came from – either County Monaghan or County Clare, the two places in Ireland where the MacMahon surname arose. But our ancestors have sometimes come from Dublin, or Scotland or perhaps emigrated elsewhere, to Europe or Australia. There are also two or more separate septs of Mahon who originate in Ireland and may now be known as McMahon in the US or elsewhere and there are variations of the McMahon name … We have on our site the MacMahon Genealogy for the Monaghan MacMahons from the time of the Collas up to the 1640s and in some cases have been able to construct additional family lineages beyond that decade. But due to many events pertaining to turmoil in our homeland there are essentially no records between the 1640s and the early 1800s, leaving us with a nearly 200 year gap to fill. This is often impossible to accomplish.
>
> Many descendants of émigrés then do not know whether their roots are with the Ulster sept of MacMahons in County Monaghan or with the Clare sept of one of the Mahon septs.[6]

These new techniques are thus seen to offer ways of linking modern and medieval genealogies and of clarifying the geography of origins beyond more recent histories of mobility before the ancestor arrived in the 'New World'. Project website introductions explain that the studies may enable the group to genetically distinguish between different branches of the clan that are associated with particular regions, as well as to explore the connections between clans that are thought to be historically linked by genealogy and geography. The goal then is not simply to find a single origin place for the ancient clan but to provide a differentiated geography of origins within which diasporic descendants can be precisely located. However, being able to do so involves quite complex processes of interpretation that are often openly provisional.

Most of these projects are coordinated by a 'group administrator', often based in the U.S.A., who encourages members of existing clan associations or recruits to newly established groups to buy tests directly usually through Family Tree DNA, and who communicates and, with some help from the company advisors, interprets the results for those who have participated and for other interested members. Genetic surname project coordinators encourage potential participants and existing project members who have not yet done so to take the more expensive but more informative Y-chromosome tests. The twelve marker tests explore too few markers to do more than locate the individuals within the broad Y-chromosome haplogroups that population geneticists have identified and named for different regions of the world. A twelve marker test would thus only ascertain the direct paternal European descent of men interested in their Irish origins. Tests that include more markers – the twenty-five, thirty-seven or the most expensive sixty-seven marker tests – are those that are used to explore relatedness and origins within the same surname groups. The men involved in genetic surname projects receive their results in the form of a set of numbers that correspond to the number of repeated sets of the four bases counted at particular segments or markers of the Y-chromosome (known by the prefix DYS). The results of surname group projects that usually take the form of tables of the DYS results of each of the project participants, who are sometimes identified by name as well as testkit number, are presented and explained on the society or association websites as well as on individual project webpages on the Family Tree DNA site. Until recently, most were publicly accessible. However, the results are not simply listed but are grouped according to degrees of difference and similarity, and it is the identification, interpretation and ordering of these groups that are central to these projects.

The results are ordered usually by their degree of closeness to what is established as a characteristic haplotype for the group. There are two techniques for establishing this haplotype, one based on numerical frequency and the other on verified genealogy and in some cases geographical location. The O'Shea DNA Project, for example, adopts the first approach, the 'Ancestral Modal method'. As the project administrator makes clear in explaining the results, in this case the alleles for each of the thirty-seven markers that are found most commonly among participants are taken as the Ancestral Modal, the '*Haplotype* of the unidentified hypothetical common ancestor of all O'Sheas'. Nonetheless, as the explanation also makes clear, this is not a fixed or static 'genetic signature': 'The Ancestral Modal is recalculated every time a new result is processed and thus the figures presented may change with new issues of this article. The relatively small number of results at hand to date may currently be giving an unrepresentative Ancestral Modal, but hopefully the addition of further results will correct this.'[7] The groups that result from comparison of the participants with this Ancestral Modal are thus continuously subject to revision and are both dependent on the size of the sample and the genetic profiles of those who get involved. A different set of O'Sheas could produce a different modal haplotype and thus different calibrations of similarity and difference. So, although the genetics seems to offer a precision and exactitude that can assuage the usual unknowability of several centuries of paternal lineage to ancient origins, the results are qualified from the start. Group administrators are more or less explicit about the degree of difficulty in making sense of the results, as well as their provisional nature, but most acknowledge that the results are the best current interpretations and may be revised. Following the epistemology of 'good science', participants are given results that carry the promise of scientific truth but are advised that these results are current truths subject to the normal process of scientific progress. These warnings of their contingency do not, however, frame the promotion of the tests by commercial companies or enthusiasts. Nor do the cautious interpretations of, at least most, project coordinators accompany the wider announcement of the results in media reports.

The O'Shea DNA Project is also 'actively seeking more Irish based participants with proven ancient family histories, particularly in Co Kerry, that can be used as bench marks' and so is also interested in making use of the second method of establishing the 'baseline' haplotype. This involves taking the Y-chromosome profile of participants who have a verified genealogy that links them to an area and an established noble lineage in Ireland. Sometimes these genetic reference points may simply be men that are defined as ordinary sources of genetic samples of unbroken descent and domicile in the surname's heartland who are encouraged to participate by project members. In other cases they are significant for being considered to be of noble descent. Some men who are recognized as the most direct descendant of the last clan leader before the breakup of the Gaelic clan system in the early modern period, who are known as Chiefs of the Name, are being invited to have their DNA tested as part of genetic clan projects. Family Tree DNA encourages groups to set up funds based on the donations of project members to pay for the testing of key individuals. Those participating in the Driscoll of Cork DNA Project, for example, are invited to 'Contribute to our General Funds which is used to purchase kits for non-genealogically originated DRISCOLL whose lineage is of interest to the group as a whole because they come from a historically interesting family key to our origins'.[8] However, men in Ireland who are potential 'benchmarks' for these diasporic genetic studies may have little enthusiasm for donating cheek cells to aid other people's search for origins. For them, the question of proving origins is much less compelling than it is for those who idealize a sense of ancient ancestry and origins at a distance. This reluctance of 'natives' to be used as sources of genetic information is paralleled by similar resistance to the sampling efforts of human population geneticists in other contexts. In this case the author of the summary of the O'Shea project results reports that: 'Voluntary participants have also been scarce on the ground within Ireland and the few recent additions have been due to pestering by and financial support of, the committee members of the Clan Society.'[9] The practice of trying to genetically establish a connection between the 'rooted' and 'diasporic' can undermine assumptions that shared ancestry is the basis of mutual interest and affinity. Instead it points to the different dynamics of identity and belonging between 'homeland' and diaspora. But realizations of difference within the broad community of Irish descent are also paralleled by practices of differentiation within clan associations.

In some cases genetic tests for paternal ancestry are being used to create formal distinctions within clan organizations based on being able to establish genetic connection to ancient Gaelic 'bloodlines'. The O'Donoghue Society has established a Royal Order exclusive to those who have the genetic profile deemed to represent a specific Gaelic noble lineage. But distinguishing between participants is fundamental to all these projects even if the effect of the production of categories of belonging and relatedness within them are less formal and are often handled with more circumspection. The grouping of individuals can suggest that some men have chiefly descent in some cases and that some men are not even distantly related to the clan group in others. When those interpreting the results do so in relation to established clan histories derived from the histories, mythologies and genealogies of early Gaelic society, some project participants can be informed of their likely connections to specific historical figures and specific places. In contrast, other members are located in a provisional limbo awaiting classification. In other cases, those men whose results do not place them within the main subgroups are defined as outlier groups with the explanation that, they may be reclassified, or these outlier groups may become more significant as more men participate and more results arrive from Family Tree DNA. Sometimes these groups are groups of one. Instead of simply being told they are not related, when possible, individual men may be described as a 'group' among the range of groups, even if they do not fall within the groups taken to be, or taken to be closest to, the Ancestral Modal Haplotype.

However, those men whose Y-chromosome markers bear no relation to those that are established as typical for the surname or clan group cannot be grouped in this way. Participants thus always face the prospect that their tests will reveal that what may be their long and deeply held attachment to a name, ancestry, Gaelic heritage, culture, place and origin does not match their genes (or at least their Y-chromosome genetic patrilineage). The promise of affirmation of ancestral identity has to have as its corollary the threat of refutation. Some involved are simply matter of fact about this. Others suggest that a discovery that one's surname does not match the established haplotype for that name is fortunate since it prevents someone wasting more time on researching the mistaken lineage. Men who are interested in a particular project but do not bear the particular surname being studied through direct paternal descent are often encouraged to find another group or to begin one themselves. The implication is that discovering nonbelonging in one group opens up the possibilities of discovering true belonging in another, so no one is left completely outside a genetic collective.

At the same time, the criteria of membership with a clan or surname association shifts, at least symbolically. Clan membership, which is often open to those with interests in the name because of its presence within their family trees but who do not necessarily bear it as their own name, is implicitly tightened to those whose genetic results support their direct male line descent. The senses of collective descent that suffuse these societies could potentially withstand these new genetic distinctions, but the significance that is afforded to shared ancestry within them, and even more so when it is genetically verified, can fracture previously untested senses of affinity and affiliation. Those involved often talk of a strong sense of affinity with those that match genetically, even if these matches are fairly distant and explain this affinity through a positive or at least benign sense of family ties. Sometimes this is a matter of online sociality; in other cases, trips are made to meet those newly established relatives that entail all the negotiations of desire for connection and recognition of difference that occur in conventional genealogical tourism.[10] But the claim that participating in a DNA surname project provides 'a sense of camaraderie with all who participate in the Family Project, which is particularly strong for those who share a genetic ancestry' suggests by extension that those who do not share 'genetic ancestry' have no 'natural' basis for senses of connection and commonality.

The responses of men who discover that their surname does not correspond to the Y-chromosome patterns that have been ascribed to the name are largely absent from the online domain of genetic Irish surname studies. Group administrators report on the email communication that stops abruptly after results of this kind. Unsurprisingly, there is no place for the expression of loss, disappointment or even scepticism when the public forum of online discussion groups is defined through being part of and invested in and not outside the shared community of descent. This silence is unsurprising too, given that failing to match is not just a matter of fractured senses of fraternity but of suspected illegitimacy in the recent or distant past that caused men not to inherit the surname of their biological father.

Origins and Relatedness at Different Resolutions

However, the meaning of genetic similarity is not straightforward even for those who are judged to fall within the groups based on genetic similarity and nearness to the 'benchmark' haplotype. Interpretations of relatedness between individual men and their place within the overall findings are based on complex comparisons that involve describing and analysing the significance of genetic matches, genetic difference and current accounts of the rates of genetic mutation in general and the rates of mutation of specific markers. Family Tree DNA has developed a system of estimating the number of generations or time to the most recent common paternal ancestor (TMRCA) of any two men. But the results are described not in a language of certainties but of estimates and statistical probabilities. This extract from the Driscoll project is typical:

> David Dean and Edward Joseph Driscoll match 22 of 25 markers. The implication is that they share a common ancestor but too long ago to be found in the paper records. Specifically, the probability that they share a common ancestor within:
> 200 years is 10%
> 400 years is 45%
> 600 years is 74%
>
> On the other hand, David Dean and Richard Driscoll are definitely related. They match 34 of 37 markers. The probability that they share a common ancestor within:
> 8 generations or about 200 years is 48%
> 16 generations or about 400 years is 91%
> 24 generations or about 600 years is 99%.[11]

It is hard to know to whether these sorts of statistical probabilities are satisfying or frustrating results. Email discussion lists at least suggest the demands of trying to understand them and relate them to personal genealogies and clan histories. These lists are dominated by appeals for guidance, speculative interpretation, advice, clarifications, corrections of misunderstandings and explanations of the most basic basis of the tests and the most complicated analytical approaches. But it is clear that these probabilities and the different temporalities of ancestry and spatialities of origin within project reports do not always supply simple answers to quests for origins. Many of the results suggest instead different orders of origins and different registers of relatedness. At one level of analysis, the results may be interpreted as regionally rooting the clan, sept or surname group in Ireland. At another, they suggest a much more temporally distant and geographically generalized original place. References to early Irish history appear alongside accounts of prehistoric population movements in project reports. A 'close knit relationship' between a geographically bounded group is juxtaposed to the much larger scale and broad sense of relatedness, as in the explanation of Group 1 of the MacCurtain study:

> Group 1 is the largest group with 23 out of 42 people tested so far. Every one in the main portion of Group 1 show complete matches, or no genetic differences at this level of testing. Since they all are from the same region, the area where Counties Clare, Cork, and Kerry join this should not be surprising. Most of this region is mountainous, and has many isolated valleys and towns, leading to a close knit relationship over the years. The one surprising finding is the Haplogroup J2 … This Haplogroup did not expand out of the Middle East until about 3000 to 5000 years ago.
>
> The Haplogroup J is found primarily in Middle Eastern and North African populations. This group was carried by the Middle Eastern traders into Europe, central Asia, India, and Pakistan. It also contains the Cohen modal lineage. This is the line of the Jewish priesthood. The J2 sub clade originated in the Northern portion of the Fertile Crescent where it spread throughout the Mediterranean area, Central Asia, and India. One member has had the J2 Haplogroup tested and confirmed. This sub clade is indicative of a Neolithic farmer origin. (A map of Europe showing where people who have tested for Haplogroup J2 can be found at http://www.ysearch.org/haplomap_europe.asp?haplo=,J2)
>
> Group 1 shows that at 200 years (8 generations) they have a 55% probability of a common ancestor, and at 400 years (16 generations) the probability increases to 80%.[12]

Group 1 are thus bound together by their degree of Y-chromosome genetic matching (even if probabilities of common ancestors remain probabilities) that is thought to reflect the topography of their shared locality in Ireland. But at the same time one member is found to have a haplogroup that is both shared with millions of others, including, supposedly, Jewish priestly men, and 'found primarily in Middle Eastern and North African populations'. Similarly, the results of the MacTighernan study at one order of analysis suggests genetic diversity among the MacTighernan men and at another points to a very extended sense of genetic relatedness:

> With the tests completed so far we 29 MacTighernans fall into nine separate unrelated and different DNA groups … Based on what I have read there are 153 distinct genetic population haplogroups in the world, with all of us falling in the R1b haplogroup as well as 70% of all those tested at the FamilytreeDNA lab. Most or a large part of western Europe's population is also in the R1b haplogroup.[13]

This combination of differentiation at one scale of analysis and generalized connection at another is a striking feature of genetic genealogy.

Project reports often describe those involved both in terms of broad haplogroups and more refined groups of haplotypes specific to the project members. This means that the projects often produce different sorts of relatedness and different origins at different degrees of resolution. The result of comparing the Y-chromosome markers of the men involved in the MacCurtain study to the current population genetics of prehistoric human migration, for example, suggests that the MacCurtains have 'three different origins' that relate to three different broad haplogroups named and mapped by geneticists. This genetic reckoning of origin and relatedness does not seem to provide an image of indigenous rootedness in Ireland but diverse origins and extended temporalities of migration. Though the idea of a primordial homeland is often a part of traditional Irish diasporic imaginations, these investigations of ancestral origins highlight forms of mobility that challenge the image of an ancient and pure point of origin.

Genetic surname studies are thus not only demanding in their scientific basis and statistical complexity. Those who try to relate the results of the genetic studies to their prior sense of ancestry, origin and descent have to not only cope with the coexistence of these different registers of relatedness, some specific and some very general, different timescales and different geographies, they also have to cope with the incommensurability of genetic and genealogical time. Though clan mythologies and genealogical origin stories stretch back into prehistory, most personal family trees are not complete or even partially complete beyond four or five generations. Genetic mutation rates that allow for differentiation between lineages as well as estimates of most common recent ancestors usually calibrate connections within much longer timespans, up to and more than 600 years ago. Prehistoric migration pathways that are derived from the mapping of broad Y-chromosome haplogroups are described in terms of tens of thousands of years. For some participants, these awkward incommensurabilities between ordinary genealogy and its geneticized forms, like the degrees of speculation and qualification involved in interpreting results, are ignored, overlooked or deemed to be irrelevant in light of the promise of scientific confirmation of clan ancestry and origins. However, sometimes those most committed to the projects and most close to the interpretative work they require are those most vexed by the unresolved questions that are overlooked by others. The personal effects of these studies will depend on the degree to which participants' senses of ancestral affiliation are playful, important or fundamental to their sense of themselves and their ethnicity, and the relative significance of shared ancestry within their patterns of sociability, online and offline. Yet, even if the projects do not simply supply the proofs of lineage and precise origin places that they seem to offer, they are, nevertheless, part of an emerging public discourse of geneticized distinction between different sorts of ancestry and places of origin that do have a direct bearing on understandings of ethnicity, identity and difference in Ireland, Northern Ireland and the Irish diaspora.

Y-Chromosomes and 'Native Names'

The focus on direct paternal descent both in Irish genetic surname studies and in research in human population genetics focusing on the Y-chromosome and using surnames as proxies for paternal lineage evokes an imaginative geography of premodern indigeneity and an ancient Gaelic past that is a potent but contested account of the Irish national and diasporic community of shared descent. Though interest in using genetic tests in genealogical research reflects the patterns of ethnicity and interests in original homelands shaped by European emigration, the research in human population genetics, upon which genetic genealogy depends, focuses on reconstructing patterns of human genetic variation before modern migration. New maps of human genetic variation are maps which are meant to capture patterns of genetic variation that precede the effects of more recent centuries of 'gene flow' through human mobility. Thousands of years of continuous human mobility seem to be stilled in the images of stable and genetically distinctive human groups occupying world regions that population geneticists seek to reconstruct. This means that geneticists who focus on prehistoric patterns of human genetic diversity routinely deploy sampling strategies that screen out those whose genetic profiles are deemed to derive from medieval or modern patterns of migration rather than descent from 'indigenous' populations. There is a basic logic to this. Geneticists can only study ancient population patterns by selecting donors of genetic material who they can be reasonably sure descend from ancient residents. In many cases this is by the criteria that all four grandparents also came from the area in which the donor lives. In recent research in Britain and Ireland, surnames are also being used as sampling devices, sources of evidence and the focus of research.

In the case of the research paper on the prehistoric population genetics of Ireland published in *Nature* in 2000 (Hill et al. 2000), which prompted Patrick Guinness to fund further research on Irish clan genealogies and which has in turn fed back into the world of genetic genealogy via Family Tree DNA and online discussion lists, Daniel Bradley and his team in Dublin used the surnames of the men whose Y-chromosomes were analysed to differentiate between the haplotypes they identified on the basis of their recent or ancient presence in Ireland. They used the correspondence between the direct inheritance of the Y-chromosome and patrilineal traditions of surnames to categorize their samples on the basis that men with Gaelic names are direct descendants of the ancient Gaelic population of Ireland and that the genetics of those with English, Scottish and Norman/Norse names derive from later settlers. Screening out the 'non-native' genetic material allows the authors to study an 'older geography' of Y-chromosome variation.

In a context in which surnames both have particular popular appeal as symbols of ancient and heroic precolonial Gaelic social order and culture, and are used as clues to differentiate the 'two communities' in Northern Ireland, and in which questions of the place of the 'native' and 'settler' in Ireland have long been deeply contested, this paper and its reporting entered a fraught terrain. It did not go uncontested. In response to criticisms that this approach implies that these old categories of 'native' and 'settler' can be genetically distinguished and that ethnic differences correspond to genetic differences (Cooney 2000a, 2000b), those involved insisted that they did not and had no intention of linking genetic diversity and ethnicity (Bradley and Hill 2000). However, even if inadvertently, their work can resurrect the idea of a pure original Gaelic population. It suggests that despite centuries of intermixing and complex migration flows, it is possible to differentiate men in Ireland today on the basis of whether or not their genetic profile indicates direct paternal descent from this ancient original population. By arguing that surnames are quite reliable indicators of a man's ancestral origins and that this is proven in Y-chromosome genetic studies, their work suggested that men either have ancient genetic origins in Ireland or elsewhere. This is regardless of the centuries of intermarriage that complicate an assumption that names that originally derived from specific migrant groups reflect simple and singular descent from one of them. Despite the recent emergence and historic fluidity of surnames, they are taken to be reliable guides to 'native' or 'non-native' lineages. Focusing of the Y-chromosome alone means that all other sources of genetic inheritance, from both parents, all four grandparents, eight great-grandparents and so on are overlooked. For the geneticists, this is its value; the combination of Y-chromosome genetics and patrinlineal surname inheritance makes it possible, they argue, to extract the history of ancient genetic patterns from the genetic muddle that is the product of centuries of human migration and mixing.

But it is these centuries of migration and mixing that have been central to recent attempts to reconsider traditional Irish nationalist narratives of purity of culture and descent because of the divisiveness of their definitions of a pure Gaelic nation and differentiation between 'native' and 'settler'. By the late nineteenth century, categories of identity and difference between the Gaelic nation and the colonial power, as well as between Catholics and Protestants in Ulster, were being constructed through ideas of distinctive ancestry and separate origins (Bardon 1992: 400–1; Comerford 2003: 51–84). These became categories of culture and descent whose purity must be preserved and policed. Recent academic and popular accounts of 'the people of Ireland' that challenge ideas of an ancient isolated purity and the figuring of historical periods of settlement as alien incursions, represent the history of the island in terms of complex and continuous migrant flows between the two islands on the edge of continental Europe and further afield, as well as distinctive waves of settlement (Loughrey 1988). In some cases these arguments addressed ideas of biological or racial purity directly by proposing 'that we are all happily mongrelised, interdependent, impure, mixed up' (Kearney 1997: 188) as a constructive counter-discourse to the categories of antagonistic difference in Ireland and especially in Northern Ireland, where categories of 'native' and 'settler' are deeply entangled in the collective identities of both 'communities'.

In contrast to the use of surnames to categorize the Y-chromosomes of men (and by implication their ancestral heritage) in terms of whether it derives from 'native' or 'exotic', both popular and scholarly accounts of Ulster's history have used surnames as evidence of intermarriage and intermixing to challenge the notion of two absolutely separate and ethnically distinct cultural groups in Northern Ireland. The variety of surnames in any one individual's family tree is highlighted as evidence for the impossibility of categorizing people on the basis of one surname alone and for the genealogical interconnections between what are imagined as separate communities of descent – Catholic and Irish and Protestant and British. In contrast to these efforts to reconsider old categories of identity and belonging in Ireland and Northern Ireland, recent work on the human population genetics of Ireland evokes an old geography of native Irishness and can be used to differentiate between contemporary men in Ireland and in the diaspora in terms of whether or not they are direct patrilineal descendants of ancient Gaelic clan groups (see Nash 2006b). While the geneticists involved maintained that they did not suggest any connection between genetics and ethnicity, their research now makes it possible to create new distinctions between those who can and cannot truly claim membership in a version of collective national community based on direct paternal Gaelic descent. By implication, if not by intention, they produce a genetic distinction between those of 'native' descent and those 'of ultimate origin outside Ireland'.

In the studies that followed the work using surnames and the Y-chromosome in the *Nature* paper on Irish origins, McEvoy and Bradley argue that their research 'demonstrates for the first time that surnames collectively are markers of shared recent patrilineal kinship. The extent of this varies depending on the specific name and the nature of its foundation. Some names have numerous early origins, while others have a defined and focused early genesis. In either case, it is clear that subsequent events of the 1,000-year-long history of Irish surnames have been a substantial force in shaping the genetic diversity of a modern surname population' (McEvoy and Bradley 2006: 217). They found that none of their Gaelic surnames 'showed more than about half of current bearers still descend from one original founder' (2006: 212). The implications of this for their idea of surnames as strong indicators of shared ancestry or for the complex history of 'mixing' that radically complicates the earlier categorization of the 'native' and 'non-native', are underplayed. The idea of genetically distinctive native Gaelic surnames seems resistant to revision and the focus on the paternal descent alone even if a technical artefact of the science, continues to elide the entangled genealogies shaped by the complex history of migration between

Ireland, Britain and beyond. In a contradictory fashion, Y-chromosome research is used to trace some of those migrations but in doing so often reinforces the idea of genetically identifiable ethnic groups and can only do so by constructing a genetically identifiable 'indigenous' population.

The use of the Y-chromosome and surnames in Irish genetic surname projects extends this possibility of genetic differentiation between those of 'native' or 'non-native' descent to the imaginative community of those of Irish descent outside Ireland. It similarly runs counter to recent efforts to reimagine the diaspora as a community based on shared attachments but encompassing cultural plurality. In the 1990s the relatively well-established counter-argument that Irish history, culture and collective identity have been shaped by complex patterns of settlement that challenge the idea of native purity and alien presence was extended by new efforts to enlist Irish emigration as well as histories of immigration in an effort to construct ideas of Irish collective identity in terms of cultural plurality and hybridity. Accounts of diasporic Irishness pointed to cultural diversity within the collective global community – forms of Irishness shaped by different emigrant contexts – and argued for ways of reimagining Irishness in Ireland in terms of plurality rather than purity or antagonistic difference. National and diasporic Irishness were simultaneously refigured in terms of an inclusive pluralism as a counterpoint to divisive categories of difference (see Nash 2008: 26–39).

In contrast, according to the logics of Y-chromosome surname studies, men in Ireland as well as men in the diaspora who identify themselves as Irish or as of Irish descent but do not have Gaelic names and the corresponding haplotypes, or have Gaelic surnames but not the associated haplotype, are deemed to have genetic origins somewhere else. It is only conventionally Gaelic surnames that are being studied in Irish genetic surname projects, since according to the logic of direct and native ancestry, all the other surnames in Ireland are linked to lines of paternal descent that originate outside of Ireland. The deep ancestral origins of a man in Ireland or in the Irish diaspora who does not have a Gaelic name are ultimately elsewhere. Unlike the possible understandings of interconnection opened up by conventional family history, the genealogical imaginary of Y-chromosome genetics is not one of mixing, which renders those old categories of pure native and settler descent nonsensical in the present, but one of single direct ancestral lines and old clan groups. Genetic Irish surname projects involve reckoning degrees of genetic similarity and difference between men, and using the resulting genetic groupings within clan and surname groups to establish the premodern tribal geographies of lineage and location. In doing so, they refigure both nation and diaspora as fundamentally communities of masculine, patrilineal and Gaelic descent. An extremely partial account of genetic variations and ancestry can be used to differentiate between the 'native' and 'non-native' in Ireland, and between those in the diaspora who have or do not have direct paternal origins in Ireland.

New genetic versions of Irish descent are not framed as a valorization of undiluted inheritance. This is because the focus on direct male-line descent is already exclusive. All the other ancestries that could offer an image of entangled roots or hybridity are simply rendered irrelevant in a direct paternal model of identity and descent. The focus on direct paternal descent alone effectively means that a language of ethnic fractions or mixing is unnecessary since the focus on direct paternal descent is itself a form of purification. When this is coupled with an imaginative geography of an ancient stable world of human genetic variation – of genes and people in their ancient ancestral homelands – an individual man can have only one place of ancient origin, either in Gaelic Ireland before the arrival of 'non-native' genes or outside Ireland where those 'non-native' genes originated. While an individual man may understand himself in terms of a mixed ancestry and multiple origins, the discourse of direct paternal descent is one of a singular origin and single ethnicity. As such, being of Gaelic descent becomes a property you either have or do not have and a property that can be scientifically tested. Even if in practice the project points to lineages that extend backwards in time and away from Ireland, the dominant discourse is of a single ancestral place. Against the grain of recent configurations of national and diasporic Irishness as plural and hybrid, genetic surname projects and the human genetic research with which they are entangled, conjure up a geography of the nation and a genealogy of Irishness as fundamentally Gaelic. Ancestry is reduced to patrilineage, and the nation and diaspora become communities of shared paternal descent from Gaelic forebears rather than hybrid and 'mongrel' collectives. While Y-chromosome surname studies do not necessarily produce the genetic proofs of origins and clan descent they seem to promise, they are based on versions of ancestry and origins that run against the grain of recent efforts to reimagine belonging and identity in Ireland, Northern Ireland and the diaspora in terms of cultural plurality and hybridity. A real claim to shared ancestry must be a genetically verifiable one and authentic Irish origins mean Gaelic Irish origins. Yet, at another level, being able to say that your ancestors came from Ireland is no longer enough, since these projects generate new senses of lack and ignorance. An ever more precisely differentiated location and place in a genetic tree of Gaelic clan groups and even within specific surname groups becomes a newly required form of genetic and genealogical self-knowledge. Irish ancestry is defined genetically and via direct paternal descent, but knowledge of origins and ancestry depends on making further and finer distinctions among members of a newly geneticized community of shared descent.

Conclusion

One broad conclusion of this exploration of the consumption of genetic genealogy in Y-chromosome surname studies might be that the results of these new tests do more to undermine and complicate than reinforce the ways in which ideas of origins and relatedness are linked to geneticized versions of ancestry in the promotion of these commodities. It is clear from these projects that the answers that they offer to questions of origins are often more provisional and complicated than they seem to promise. Categories of relatedness within groups can shift as new members are tested and the location of ancient origin and categories of genetic similarity can shift at different scales of analysis. Men can be told that their Y-chromosome corresponds to a broad haplotype that locates their ancestral origins via direct paternal descent in a particular region of the world and can be informed that they shared a direct paternal descent from a named Gaelic clan member. These shifting scales of relatedness suggest very broad categories of genetic similarity at some levels and more specific subgroups at others. As in conventional genealogy, expectations of affinity between men who are assumed to be linked via shared descent across the geography of homeland and diaspora are tempered by realizations that diasporic interests in ancestral connections may not be shared by men in Ireland who are deemed to embody genetic source material about an ancient clan group.

All this might suggest that in practice, rather than crudely linking genetics and ethnicity, these new commodities may unsettle conventional categories and understandings of origins and relatedness. This would echo recent arguments that challenge claims that these new commodities simply regenerate old ideas of the biological or genetic basis of ethnicity or race. One strand of these arguments centres on the question of the ways in which people make sense of these new forms of genetic knowledge in relation to the complex and shifting roles and relations between ideas of the social and biological in understandings of kinship and relatedness (Wade 2007). This emphasis on consumption suggests that people will not simply accept geneticized versions of origins or ancestry but will incorporate them into complex, dynamic and fluid versions of their biosocial identity. This idea of the longstanding imbrication of the biological and social in Euro-American ideas of identity and kinship is paralleled by the wider and more recent destabilization of the categories of nature and culture, biology and society, which makes any claim to identify a straightforward geneticization or biologization of race an oversimplification (Skinner 2006, 2007). Together, these interconnected perspectives demand that a critical engagement with genetic genealogy is alert to these complexities.

Yet, rather than only focus on the ambiguities and complexities of genetic genealogy for those who use these tests, a critical engagement with genetic genealogy also has to involve exploring its much less ambiguous and unequivocal rendering of genetic relatedness. Consumers of these tests undoubtedly understand them in relation to their existing senses of the significance of the social and biological, but the model of ancestry in genetic genealogy undermines anything but the most genetic model of kinship. In genetic genealogy, as in human population genetics from which it has emerged, kinship is only genetic. While other domains of technoscience are troubling distinctions between nature and culture, or biology and the social, genetic genealogy is one domain in which there is a clear distinction between genetic and other versions of relatedness. And while consumers of these tests do not necessarily accept this distinction and have much more complex and equivocal perspectives regarding the meaning or significance of these tests, this has so far done little to challenge the powerful and powerfully reductive rhetoric of genetic genealogy companies. The active interpretative work and diverse experiences of consumers does mean that the practice of genetic genealogy is much more complex and indeterminate than its marketing suggests. However, those which see genetic genealogy as part of a democratization of historical knowledge (Hackstaff 2009) fail to recognize the degree to which the personal pursuit of ancestral knowledge is deeply constrained by its models of genetically meaningful ancestry. The accounts of surprising discoveries of genetic connections, hybridity and unexpected ancestral origins for individuals or groups, which often feature in media reports on genetic genealogy, should not simply be taken as cases which point to the ability of genetic genealogy to unsettle taken-for-granted accounts of identity, relatedness, belonging and difference. They may unsettle, but reading this as a productive unsettling means accepting the genetic model of identity, difference and relatedness that is at the heart of this form of applied science. Genetic genealogy is often framed by the companies and enthusiasts by the idea that by revealing 'the relatedness of all human diversity around the world', it can be a 'potent force for promoting tolerance and peace' (Panther-Yates and Caldwell Hirschman 2004: 697–98). Yet, as the case of Irish genetic surname projects has shown, it is as much about the making of divisive distinctions between people as it is about making connections.

Notes

1. IRISH-DNA is one of hundreds of general and specialized genealogy discussion lists hosted by RootsWeb.com and was founded in October 2004. List discussions are archived at: http://archiver.rootsweb.com/th/index/IRISH-DNA. Yahoo also hosts a similar list devoted to discussions of the use of genetic tests in tracing Irish roots, which is also called Irish-DNA: http://groups.yahoo.com/group/Irish-DNA.
2. These programmes include the U.S. PBS series on the genetic ancestry of prominent African Americans, *African American Lives*, screened in February 2006, and the BBC television documentary on the genetic exploration of the ancestry of Black British people, *Motherland: A Genetic Journey,* shown in 2003. For more on the *Motherland* case, see Campbell 2007.
3. I use Family Tree DNA as an illustrative case in this introduction because it one of the larger companies that offers a representative cases and because of the prominence it gives to genetic surname projects as applications of its Y-chromosome tests. For an account of the other companies involved, see Greely 2008.
4. Available at http://www.mitosearch.org and http://www.ysearch.org.
5. Interview with Patrick Guinness, Furness, Co. Kildare, Ireland, 20 February 2006. Brian McEvoy's thesis was completed in 2005: see McEvoy 2005.
6. http://mcmahonsofmonaghan.org/mcmachon_dna_project.html, date accessed 3 March 2011.
7. O'Shea DNA Project, http://www2.smumn.edu/uasal/DNAWWW/overview.html, date accessed 7 June 2004.
8. http://www.odriscolls.me.uk/dna_project.htm, date accessed 3 March 2011.
9. O'Shea DNA Project, http:// www2.smumn.edu/uasal/DNAWWW/overview.html, date accessed 7 June 2004.
10. See Nash (2008) for a more detailed account of these practices of making relations in conventional as well as genetic genealogy. This chapter draws together some of this previous work.
11. http://www.odriscolls.me.uk/dna_project.htm, date accessed 3 March 2011.

12. http://home.comcast.net/%7Enealcurtin/geneticgenealogy.htm, date accessed 3 March 2011.
13. http://www.mctiernan.com/dnatest.htm, date accessed 3 March 2011.

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7

Genomics en Route

Ancestry, Heritage and the Politics of Identity across the Black Atlantic[1]

Katharina Schramm

Introduction

The making of identities and the construction of belonging involve multiple interactions between the spheres of history, politics, culture, law and economics. Moreover, these processes are profoundly shaped by developments in science and technology and vice versa (Jasanoff 2004). This constellation becomes particularly clear in the field of genealogy, where biological and cultural categories intersect to form unique and by no means static constellations of kinship, descent and inheritance (cf. Carsten 2000, 2004; Edwards 2000; Franklin 2007; Franklin and McKinnon 2001; Strathern 2005). In recent years, genealogical research into family histories has gained enormous popularity, not least because of technological advances such as the internet, which has opened up new avenues of access and communication, be it via databases, chatrooms or online forums that provide the root-seekers with an unprecedented infrastructure to pursue their advance into the past (see Basu 2007; Nash 2008). Commercial genealogy companies have long recognized this trend and have begun to offer their services through the worldwide web. Increasingly, these services do involve genetic ancestry testing, which constitutes one of the avenues by which the science of the new genetics has entered the public realm.[2]

In these contexts, DNA and its scientific analysis have been regularly presented as a kind of truth machine that can reveal one's past and future, if only one is able to read the signs.[3] Individual and collective histories, from ancient migrations to more recent genealogical traces, appear to be inscribed onto our bodies, encoded in certain DNA frequencies. In a similar manner, individual futures are seemingly made accessible, for example, through disease susceptibility tests. A lot has been said and written about the inadequacy of such analogies[4] and emphasis has been laid upon the creative uses to which genetic information is actually being put by the people affected by it (see Rabinow 1996; Wade 2007). Nevertheless, the image of DNA as a repository of truth is still particularly effective in the domain of genetic testing, and it is this image that makes genetic testing for ancestry such an attractive option for which people are willing to pay quite substantial amounts of money.

Currently, up to twenty companies offer ancestry testing via the internet (Bolnick et al. 2007)[5] and the phenomenon is being widely discussed in the anglophone press as well as in academic literature, with a strong bias towards the U.S.A.[6] Despite a shared interest in an embodied past among test-takers of all backgrounds, there are, of course, different views with regard to the impact the testing is assumed to make on one's life. Whereas some customers of recreational genomics[7] may seek a genetic connection to famous historical figures such as Genghis Khan (available through Oxford Ancestors), thereby emphasizing the playful aspects of ancestry testing, the practice may take on a deeper personal meaning in diasporic contexts, where an emotionally-laden concept of an original homeland (i.e., 'roots') exists but knowledge about its concrete contours is limited. Especially for African Americans and other members of the black diaspora whose family histories are shaped and shattered by the violent disruptions of slavery and the slave trade, the new technology promises to reveal hitherto unavailable information and thereby indeed to operate as a kind of identity assurance on a molecular level.

Both the company advertisements and the mainstream media coverage put great emphasis on this revelatory component of the testing. In the following, I attempt to go beyond this initial rhetorical stance in order to discuss some of the processes through which meaning is created (and contested) in and through the practice of genetic ancestry testing. In other words, I will look at aspects of what Catherine Nash has termed the 'cultural work of making genetic meaning' (2004: 3). Drawing on my previous work on cultural politics and roots tourism, my ongoing research in Ghana as well as on interviews with service providers and customers of genetic ancestry testing, I will try to identify continuities and ruptures with other existing forms of Black identity production and the politics of memory and heritage. In order to achieve this, I will follow a relational approach that takes different and shifting positionalities into account, thereby highlighting the processuality of knowledge production and political practice.[8]

Through its combination of techniques of embodiment, purification, objectification and commodification, genetic ancestry testing constitutes a unique location where the changing dynamics of heritage formation in connection with individual and collective categorizations can be fruitfully explored. On the one hand, genetic ancestry testing is a highly personalized endeavour, placing an individual's body, represented by a drop of saliva, on the centre stage of the interpretation of genetic data. On the other hand, it is firmly linked to collective classifications: first, in terms of the taxonomies underlying the construction of the database and the design of 'populations'; and, secondly, in terms of the conclusions about a test person's biological and/or social belonging to one group or the other. The diasporic 'self-fashioning' (Nelson 2008a) that ancestry testing facilitates is thus deeply political in its foundations as well as its articulations.[9]

Given the great popularity of genetic ancestry testing among African Americans in the U.S., I refer mainly to the situation of this particular group and to perceptions of their needs.[10] I consider the practice of genetic ancestry testing as part of a wider Black Atlantic network (Gilroy 1993), a diasporic relationship that is at once historical, imaginary, economic, political, legal, cultural and touristic, and that involves complex connections and disjunctions between the African homeland and diaspora. My analysis of genetic heritage/politics will consequently focus on three interrelated aspects. The first one concerns the specifics of the African diasporic situation and the impact of slavery on notions of identity. The second one relates to the specificity of United States multiculturalism and the ethnicization of belonging. The third one is connected to the situation of African states, which are at the receiving end of the genealogical quest yet have been strikingly under-represented in previous discussions.[11] Before I turn to those issues, I will describe how the tests work – both in terms of the underlying technology as well as their representation in public.

'One Simple Test Can Identify Your Family's Country of Origin':[12] Genetics, Genealogies, Populations

If the twentieth century has been the 'century of the gene' (Fox Keller 2000), which cumulated in the announcement of the 'decoding' of the human genome in the year 2000, the first decade of the twenty-first century has already been called the beginning age of 'postgenomics' (Abu El-Haj 2007). On the one hand, this refers to a shift away from gene determinism to the acknowledgement of systemic complexity, as evident in the research on gene-environment interaction in the fields of proteomics and epigenetics (Lock 2005; Zwart 2007). On the other hand, this term captures the growing emphasis on difference, as is evident in the Human Genome Diversity Project (see Reardon 2005) or the more recent HapMap Project (see Braun and Hammonds 2008), as well as the growing individualization of genomic information (Condit 1999, 2007).

Genetic ancestry testing is firmly placed in this discursive realm of inherited human variation (see Marks 2001). The scene for this enactment of diversity is the noncoding, non-recombinant parts of DNA on which statistically noticeable markers of genetic difference between groups of people, i.e., haplogroups, can be located. Those are mitochondrial DNA (mtDNA), which is exclusively inherited from mother to child, as well as Y-chromosomal DNA (NRY DNA), which is inherited from father to son only.[13] Ancestry testing makes use of this genealogical order so as to trace maternal or paternal descent respectively.[14] Individual markers are then run through a computer program which compares the sample to a database in which other DNA sequences are classified along the lines of known 'populations'. As a technology, ancestry testing at the same time relies on established categories of race and ethnicity while also undermining them – a dynamics that will be analysed further down.

One of the most prominent proponents of the new gene/alogy among African Americans has been Henri Louis Gates, Jr., Harvard Professor of African American Studies and well-known public intellectual. He hosted the TV programme *African*

American Lives, where the family histories of celebrities like Whoopi Goldberg, Quincy Jones or Chris Tucker were tracked down by means of conventional genealogy as well as DNA testing.[15] For this production, he relied heavily on the services of African Ancestry, which at that time was the only company that had specialized in African American consumers and to which I will turn below.[16] Meanwhile, Gates has founded his own company African DNA, in collaboration with Family Tree DNA. On the homepage of this company, Gates' advocacy for ancestry testing reads as follows:

> With cells collected from the insides of our mouths, geneticists can analyze small sections of our genetic material that form distinctive sequences known as 'haplotypes', which can then be compared to DNA samples taken from people on the African continent. The process is a bit like matching fingerprints on CSI. A match between our DNA and the DNA from a person from Africa means that we have possibly found someone with whom we share a common ancestor, someone from our same 'tribe' – be it Igbo or Yoruba, Fulani or Mende. Such a match can reveal an ethnic identity that has been lost for centuries, since the dreadful Middle Passage. I would urge anyone who is interested to try and trace their family back to Africa, through genealogical research and DNA testing. There are several tests available, and each is surprisingly inexpensive, often less than a pair of designer sneakers. (Henri Louis Gates, Jr. on AfricanDNA.com)

This explanation reveals a lot about the representational dynamics of ancestry testing in general and its unique combination of science, history and consumption. Gates' reference to the price of the tests (in the range between $100 and $350 per test) not only indicates the middle-class status of potential clients but also speaks to the desirability of ancestry testing as a 'must-have' consumer good, similar to a fashionable 'pair of designer sneakers'. In an analogous way, the allusion to *CSI*, a globally successful TV programme in which the lab and the forensics practised therein feature as the main site of criminal investigation and the establishment of truth, firmly places ancestry testing within the realm of popular culture and consumerism.[17] Like many other gene/alogy websites, the complex processes by which the genetic data are codified, compared and eventually interpreted get blackboxed and obscured from the public representation of the procedure: the only things left to consider are the easy cheek swab and the eventual revelation of the results in a certificate of descent. The probabilistic nature of ancestry testing (both in terms of the DNA analysis itself and the comparison with an existing database) is likewise withheld. Instead, the impression of an exact match (comparable to the uniqueness of a fingerprint, genetic or otherwise) is being created, despite the fact that such a one-to-one match hardly exists, given the clinal nature of genetic variation and the wide distribution of haplotypes across population boundaries.

The ambiguity of ancestry testing can be stressed even further if one takes into account the fact that the testing focuses exclusively on one singular (paternal or maternal) line of biological descent. The further back one moves in time, the more complex the situation becomes, as a person's direct ancestors multiply exponentially, yet the test would only refer to one of those.[18] However, despite these severe limitations, the advertising for the tests evokes genetics as a proof not only of African origins but more specifically of ethnic belonging – 'our same tribe' – manifested in an individual's body and supposedly kept intact over long periods of time by means of biological inheritance. History and identity are thus located in the DNA, creating the impression that genetic science can give direct access to the past and thereby resolve what is presented as the diasporic identity crisis.

African DNA does admit that 'sometimes the tests yield multiple exact tribal matches'. Distancing itself from other companies, it offers an extra feature, namely cooperation with historians who help to interpret the results in order to arrive at the most plausible conclusion about the test-person's ancestral belonging. This strategy was already employed in *African American Lives*, where, for example, John Thornton, a well-known expert on the transatlantic slave trade, was brought in to align the genetic data with historical knowledge. This reference to yet another scholarly expertise further increases the impression of the scientific nature of ancestry testing, which, as I argue, rhetorically constructs its revelatory power. Yet, as Henry T. Greely insists, this image of science is misleading, because:

> the real science of genetic genealogy is riddled with qualifications and limitations; it deals with varying degrees of probability and not with anything close to certainty. It looks at precise questions, precisely defined, like a direct paternal or maternal line. Genetic genealogy skips the caveats and in doing so promotes a false perception of science; it invokes science's power without accepting its limits. (2008: 231)

Moreover, the underlying mythologization of science goes along with a double reification of history – both in terms of the formation of diasporic identities as well as the idea of African ethnicity and the intrinsic connection between the two. Consequently, the reference to 'tribal' identity stands as the ultimate goal of ancestry testing. This idea of ethnic or 'tribal' descent plays on the convergence of cultural, territorial and biological boundaries in the definition of populations that is prevalent in many other heritage projects outside the sphere of recreational genomics. The company that has taken this 'tribal' identification furthest is probably the abovementioned company African Ancestry, to which I will now turn.

In the internet presence that African Ancestry displayed until a few years back, the parallel to commodified heritage presentations, as they dominate Afrocentric popular culture,[19] was particularly evident. Pictures of African people in 'traditional' apparel, images of masks as well as straw-clad round huts were depicted next to the various product offers and explanatory texts. Any reference to contemporary Africa was carefully avoided, suggesting that the genetic test would open up a direct window to a past of ancient glory (not contemporary struggles). Here, genetic 'roots seeking' operates in the same discursive realm as conventional heritage tourism directed at a diasporan audience, where references to an imaginary homeland are at the heart of the advertising brochures and travel itineraries. On African Ancestry's homepage, in addition to the images of masks and sculptures, the faces of an old man and an old woman were used to mark paternal and maternal descent respectively, suggesting cross-generational inheritance, ancient ancestral wisdom and access to a past associated with oral lore. However, it was never them whom one was supposed to ask in order to find out about one's origin,[20] but rather one's own body – a self-referential repository of genetic information that only needed to be tapped and interpreted by the knowledgeable scientist.

Today, these images have been exchanged for different kind of representation, focusing more on the interaction with potential customers. The website is now animated and entails a number of videoclips and infomercials. The photographs of African people have been replaced by pictures of African American families as well as much more abstract images, such as that of a classical pedigree illustrating maternal or paternal genealogical lines which are to be traced through the testing.[21] This shift can be interpreted as a move towards a more 'objectified' outlook, using scientific imagery and contemporary African American faces in order to convey the company's message. Nevertheless, like the stated goals of African DNA, the claim to ethnic specificity (and thus to a particular heritage discourse) still holds true, as in the section on 'benefits', where the 'Certificates of Descent' from other companies that are not specialized in an African American clientele are compared to that offered by African Ancestry. In contrast to the other certificates on display, where the genetic information is given without an explicit reference to contemporary cultural affiliations, African Ancestry dismisses this 'generic haplogroup jargon' and emphasizes symbolic peoplehood instead – a very important feature in the heritage discourse of African Americans. In the end, the results may read as follows: 'African Ancestry hereby certifies that [so and so] shares Maternal Genetic Ancestry with the Fulani people in Guinea-Bissau and the Mende people in Sierra Leone' (retrieved 3 March 2011 from http://www.africanancestry.com/benefits.html). On the 'testimonies' page, one gets an impression of how this particular information is interpreted by African Ancestry's customers – who are often shown in tears or displaying similar emotionally-laden gestures. Sometimes, the announcement of genetic ancestry is framed in public conventions, which stress the ritual and revelatory component of the ancestry testing even further.[22] On such occasions, representatives of African nations or 'tribes' may be present to symbolically embrace their newly identified 'genetic relatives'[23] – thereby creating a strong and emotional moment of effervescence that could not have been generated by the test results alone. However, the effect of such ceremonial affiliation is often limited to the instant of the performance itself: similar moments are created in homecoming rituals, such as naming ceremonies, which are staged as part of the travel itineraries of diasporan heritage tourists on the African continent (see Schramm 2010). The BBC documentary *Motherland: A Genetic Journey* also facilitated such encounters for its protagonists, which at first enhanced the intensity of the felt connection. In later interviews the test-persons expressed their estrangement from the African communities they were said to be related to and emphasized their diasporic identity instead. Again, this reaction is comparable to nongenetic-based homecoming experiences. Despite these limitations, the attractiveness of the tests is persistent.

African Ancestry claims to be able to announce genetic ancestry with such a degree of precision that a person's ethnicity can be determined, because of its 'largest African database'. Information on the specific setup of this database varies in the different reports that are available. Glaser (2003) speaks of a sample of 9,000 Africans from 82 ethnic groups; a *TIME Magazine* article (Hamilton 2005) gives the number of 20,000 DNA samples from 400 indigenous African groups, whereas Rees (2005) talks of 10,386 paternal and 11,170 maternal lineages from over 135 indigenous African populations. In 2005, Rick Kittles, scientific director and co-owner of African Ancestry, stated that the database they use consisted 'of over 11,170 mtDNA haplotypes and 10,386 Y chromosome haplotypes from over 120 indigenous African populations' (Winston and Kittles 2005: 214). Three years later, when the current homepage was launched, it was indicated that the database 'includes lineages from 30 countries and over 200 ethnic groups. Paternal lineages: 11,747 samples. Maternal lineages: 13,690 samples' (retrieved 3 March 2011 from www.africanancestry.com/database.html).[24]

Despite the fact that the database is constantly expanded, these differing (and at times contradictory) numbers, especially when concerning the category of 'population', indicate the controversial issue of boundary determination on the part of the providers of genetic ancestry services. For example, in the case of Ghana, among the ethnicities that are listed are 'Fante, Ashanti, Akan', yet both Fante and Asante are subgroups of the Akan language family and thus the three terms are not on the same classificatory level. Moreover, this classification does not say much about the political constitutions which make ethnicity a meaningful category of belonging. Population geneticists, on whose findings the various databases of ancestry companies are drawn, often work with the presupposition 'that ethnicity, language, and genetic inheritance are today shared characteristics of well-demarcated, easily defined human populations and that these characteristics generally covaried in the past as they are held to covary in the present' (MacEachern 2000: 362). However, this conceptual unit that is here framed as 'ethnic group' or 'tribe' has a specific history in colonial administration and anthropology (see Braun and Hammonds 2008). It does not match the dynamism of human migrations, self-identifications and political affiliations, and has consequently been abandoned in (social) anthropological literature. Inasmuch as the notion of an unspoilt African cultural authenticity that has remained intact since the first Africans were taken away as slaves is ahistorical, the suggestion that all members of an ethnic group share a biological essence ignores the longstanding historical relationships, transformations, continuous movements and violent disruptions that have shaped African societies, just like any others.

In the genetic analysis, molecular time, which is already a controversial measure in itself (Sommer 2008), is collapsed with historical time, despite the fact that those categories operate on quite different levels (see MacEachern 2000). Ethnic differences are first taken for granted and only then are genetic maps produced accordingly (see Marks 2001) – a highly problematic methodological issue. Even while ethnicity and biology may statistically correlate[25] (as do other sets of criteria by which any groups can be distinguished from one another), this connection does not give a hint at cultural (or political) belonging. In order to arrive at conclusions about such an affiliation – in the sense of a personal identity as the revelation procedure suggests – interpretation has to come in. To facilitate this meaning-making, African Ancestry offers its customers guidance in the form of 'Show Your Roots Items' (such as T-shirts and caps displaying various 'countries of origin') as well as a 'Historical reference guide for 21 West and Central African countries'. The latter presentation bears a resemblance to the glossy brochures of the heritage industry, which forms such an important conceptual framework for ancestry testing.

However, just as a root-seeker's homecoming experience is not reducible to standardized tourist representations and reified heritage products, neither is a person's response to the genetic information one-dimensional or necessarily deterministic.[26] On the contrary, as Alondra Nelson (2008a, 2008b) has demonstrated, people's interpretations of the test results show a high degree of creativity and flexibility (even though it often rests on the illusion of clear biological distinctions between groups). Customers of genetic ancestry testing engage in processes of cultural authentification that are simultaneously influenced by aesthetic representations and sensual experience but that also draw significantly on historically shaped and socially performed (as well as continuously transformed) political subjectivities. In the following text, I am going to further investigate these interpretative frameworks, i.e., the conceptualization of diasporic identities, the specificity of U.S. multiculturalism and finally the response by receiving African states, as exemplified through the case of Ghana.

Rupture and Reconnection: Diaspora

Ever since the time of slavery, the rhetoric of African kinship and racial solidarity played an important role in African diaspora identity politics and its manifestations in the various homecoming movements to the African continent: from the foundation of the Liberian colony in the nineteenth century via Marcus Garvey's rallying cry 'Back to Africa' and the pan-African solidarity wave of the 1950s and 1960s to the more recent homecoming drive which is mainly articulated as heritage tourism but also, to a lesser yet by no means insignificant extent, as repatriation (see Schramm 2010). Especially since Alex Haley's world-famous novel *Roots* (1976) and the accompanying TV series, genealogical research has become widely popularized among African Americans. Haley's semifictitious discovery of his ancestor Kunta Kinte and Juffure as his 'ancestral village' (no matter how fabricated or factual it may have been) promised an opportunity to reach beyond the gap of the Middle Passage and to link up with an integral African past that had been denied through slavery. To some extent, this development went along with a culturalist turn in Black politics, where the idea of political solidarity that had dominated the Pan-Africanist and Black Power movements of the 1960s gave way to (or at least was complemented by) more personalized identity claims that were connected to the appropriation of

African 'traditional culture' in a commercialized heritage framework (cf. Diawara 1992; Hernandez-Reguant 1999; Ross 1998).

At the same time, *Roots* (like many genealogical projects) already anticipated the biological reasoning that is at the core of genetic ancestry testing by relying on a concept of natural kinship while giving priority to a singular source. As David Chioni Moore puts it, 'the [very] force of these root images derives in large part from their biological or genetic claims about present identity' (1994: 14). These claims are not self-evident; after all, Kunta Kinte (apart from his semifictitious character) is but one of many possible ancestors of Alex Haley, and Haley himself shares this particular ancestor with numerous contemporaries. The linear connection that is constructed between the two individuals derives its power and meaning not from biology alone but rather from a unique historical and political constellation, beginning from the particularities of the slave trade and stretching out to current racial politics in the diaspora (and the U.S.A. in particular), even if, as Moore speculates:

> [a]s a matter of pure theory or strict bloodline genealogy, Alex Haley could have identified any of [his] non-African ancestors as his 'root', but as a matter of practice and American social mandate, that is hard to imagine … As a matter of day-to-day reality in the United States, the general dynamic of ethnic choice is divided very strictly by color. Though many 'mixed' whites … can choose to identify either as … Belgian or Italian … for the most part the so-called 'one-drop' rule identifies all Americans of any visible Africanness as Black … (1994: 15)[27]

However, such directed genealogy (in search of one's Black forebears) also served (and continues to serve) as a means of empowerment for a generation of new middle-class African Americans who have experienced the Civil Rights Movement, have partly benefited from it and yet are notwithstanding (or perhaps even more so) aware of ongoing racism and discrimination, as they are still prevalent in the U.S.A.[28] This generation is also the group that can afford to travel to Africa or to take the genetic testing, and indeed, as Gina Paige, the business executive of the company African Ancestry, told me, the average age of their customers is fifty-four and most of them come from urban centres, such as Washington DC, Chicago, Atlanta or Los Angeles (personal communication, Washington DC, 18 March 2007).

To research into one's family history indicates a way to document one's own uplift and also provides a means of honouring the struggle of one's forebears, often on behalf of African Americans in general. It gives a voice to those whose agency had been suppressed during slavery. Reconnecting with one's African past and emphasizing an African identity through consumption, genealogy or travel also springs from a desire to counteract the stigma of slavery as 'social death' (Patterson 1982). The promise of genetic ancestry testing to concretize this African connection down to the level of community (as the idea of 'tribe' or 'ethnicity' suggests) therefore bears a strong social component, if only in a different sense from ethnicity as a political organizational form.

According to Gina Paige, clients' concrete motivations for taking the test vary, yet all are connected to the expectation of gaining a sense of certainty about oneself. She divided customers into four main groups: first, people wanting to confirm and replenish their conventional genealogical research; secondly, people wanting to adopt a child from Africa and aiming to make sure that they and their child would share the 'same culture'; thirdly, people wanting to travel to Africa who want to make sure to get as close as possible to their ancestors' possible point of departure; and, fourthly, people wanting to invest in Africa who intended to base their choice on a meaningful family connection. Whereas the first group thus views genetic testing as but one rather small component in a larger historical/memorial project, the other three motives seem much more loaded, as they take the genetic connection as the starting point to impact on one's life decisions.

Of course, this interpretation is clearly articulated from the company's point of view, whose advertising strategy plays exactly on this identity-formative potential of genetic testing. Given the intrinsic ambiguity of the results, people's reactions may likewise be characterized by ambivalence. While all may share a moment of emotional excitement at the moment when the results are revealed,[29] some may just forget about it, whereas it may indeed have profound consequences for others – and perhaps not in the way that is expected. Bolnick et al. (2007) have warned of the possibility of a negative psychological backlash if the test results do not correspond to people's self-ascription. However, the power of 'narrative identity' (Baylis 2003; cf. TallBear 2003) that is shaped by lived experience does not automatically get lost in genetic testing for ancestry, as the example of Suleika[30] shows.

Suleika was a young African American woman who worked as a biologist at the University of Chicago, in the genetic research lab of Rick Kittles, the cofounder of African Ancestry. I met her several times early in 2007 and we had long discussions on the African American experience, on academia and representation as well as on the epistemological differences and similarities between natural and social science approaches to their respective subjects of enquiry. She had not yet taken the test, but was looking forward to do so and finding out about her African origins, because she wanted to incorporate 'something from that culture' into her wedding ceremony. To her, the verification of a specific African ethnicity would enhance the symbolic power of the union with her husband-to-be; it would affirm their belonging together. The sociality that she sought in ancestry testing was limited to the intimacy of her private life. At the same time, her desire for such heritage-affirmation was firmly based in her notion of a diasporic identity. She prioritized Africanness, yet she also accounted for the ruptures and mixtures that are characteristic of diaspora. This awareness went hand in hand with an uneasiness that also extended to the possible impact of the genetic ancestry test on her sense of self. Suleika was wary that the results might confirm to her that she was only partially African: 'I was in my African dance class the other day, and I couldn't do the steps, so I was wondering – hm, perhaps this is my European genetic heritage that makes me less able to do these dance steps?' (personal communication, Chicago, 4 April 2007). That self-ironic juxtaposition mirrors her desire for cultural purity and reconnection, a desire that is nevertheless already saturated with the knowledge that such purity remains an illusion.

In accordance to her Afrocentric worldview, she expressed an idealized idea of African cultural stability, manifested in clearly bounded and thus genetically identifiable ethnic groups with distinct traditions. In his seminal study on the Black Atlantic, Paul Gilroy (1993) has criticized such an essentialist notion of the African diaspora as Americocentrism – derived from the racial dynamics in the U.S.A. and grounded in its consumer culture and political conservatism. However, Suleika's understanding of race and American identity as well as her own self-positioning in that discursive field was far more complex than that. Despite her rhetorical embracing of a genealogical (or roots-based) model of identity, she acknowledged the historical situatedness of present subject positions as well as the transformative role of politics. As Peter Wade has argued, 'kinship, genealogy and related constructs of biology do not stand in a relation of opposition to rhizomic hybridity – as necessarily conservative, essentialist and linked to primordial identities, roots and belonging – but rather are structured by the same tension between being and becoming' (2005: 607). Suleika's awareness of that tension was also evident in her research on specific health problems of African Americans, where she considered genetics (that is, her field of specialization) alongside social and environmental factors, thus taking the complexities of racial formation into account.[31] The fact that Suleika attributed positive connotations to her African heritage while associating European ancestry mainly with embarrassment needs to be put in relation to the history of slavery and race in the U.S.A. where the one-drop rule created strict classificatory categories of Blackness and Whiteness which were framed in the dominant ideology of White supremacy. This is also reflected in the representation of the differences between Y-chromosomal and mtDNA analyses as they are put forth in the public representations of the tests: while mtDNA samples show many more matches in Africa, the Y-chromosomal DNA often hints at European descent.[32] This is interpreted as evidence of the long history of sexual exploitation of female slaves by their European owners, a history that runs through many Black and White families (see Ball 1998). What is not addressed here is the problematic factor of probability and chance: only a tiny fraction of one's ancestors shares one's mtDNA or Y-chromosomal DNA. Moreover, 'misperceptions about the relationship between biology and race, and group genetics in general, can make the interpretation of genetic data difficult', as Sloan R. Williams has warned in his analysis of the debate about whether or not Thomas Jefferson fathered the children of his female slave Sally Hemmings (Williams 2005).

The individualized sense of self which is emphasized through genetic ancestry testing – or, to use a different term, personal genomic histories (PGH) – is always embedded in historically and politically determined collective ascriptions and identifications. Besides the historical period of the slave trade and slavery, what needs to be considered here are the contemporary situation in the U.S.A. and the multiple meanings of diaspora that act as a driving force behind genetic ancestry testing.

Imagining Ethnicity, Creating Belonging: The U.S.A.

As we have seen, the ethnic specification of a test-taker's descent is perhaps the most attractive feature of genetic ancestry testing for African Americans. Apart from the problematic construction of ethnicity as a bounded entity with clear biological demarcations, the specific relationship between the African American customer and a particular ethnic group remains a controversial issue. The suggestion that the one biologically traceable line that is singled out in ancestry testing (through either mitochondrial DNA or non-recombinant Y-chromosomal DNA) would be more meaningful than all the other possible genealogical connections needs to be scrutinized in order to understand the process of genetic meaning-making. Moreover, it needs to be taken into account that it is the maternal line that is privileged in African Ancestry testing, since it is believed to reveal the desired results (i.e., African origins) more reliably than its paternal counterpart.

When I asked Gina Paige about the problem that the test declared descent on the basis of only a tiny fraction of a person's multitude of forebears, she gave the following answer:

> Yes, but it is an important lineage – your maternal lineage – from your mother to hers to hers etc. … If you were adopted –wouldn't you want to know who your mother is? And isn't it more satisfying to at least know one lineage, instead of none? You are German, your parents were German – so for you it is easy. Even if you do not do it, you could do it. In general, the criticism comes from those people who do not share the experience of that huge gap caused by the slave trade. But it is important to know that you did not just step off the boat, but that you are from somewhere, that you have a base.

Other geneticists who are involved in ancestry testing, such as Fatimah Jackson, who featured as an expert in both the BBC *Motherland* production and the PBS series *African American Lives*, have warned against too strong a reliance on genetics and the emphasis on a single line of ancestry in forging one's personal identity:

> If you give up your identity to the geneticist … who is going to take a piece of you, stick it in the machine and from that deduce where one … or two of your ancestors, out of the millions of ancestors that are yours, that you can claim … [came from] and you are gonna settle for that as your ancestry … you've given up! Self-definition is the root of self-empowerment.

Despite this caution, she also drew attention to the specific sense of disconnection, dislocation and abandonment that finds its expression in the spiritual 'Sometimes I Feel Like a Motherless Child' and is shared by many African Americans. To her, the new genetic technology has a potential to address some of that sense of separation and establish a linkage with one's (African) origins.

In my conversation with Gina Paige, which was very much in line with the company's official doctrine and public appearance, she distinguished the situation of African Americans from that of other groups, whose systems of kinship were not violently disrupted by slavery. In her argumentation, she chose to employ a rhetorical strategy that made use of the symbolic power of a straight line of ancestry and of motherhood in particular. This rhetorical stance is not unique when it comes to the interpretation of genetic ancestry testing on the part of its proponents. For example, geneticist Bryan Sykes has also ascribed superior meaning to the mitochondrial connection between an individual and his or her particular 'ancestral mother' in his thesis about 'The Seven Daughters of Eve' (2001) to which all present-day Europeans could trace their roots. His racialized definition of Europeaness is one critical issue; his claim for a strong intrinsic connection and emotional closeness among the members of each genetic 'line' is another. In Sykes's description, it is the male geneticist who literally pulls the ropes and makes the hitherto passive female ancestors come to life. Catherine Nash (2004) has carefully criticized this representational strategy and demonstrated how it fits into dominant ideologies of kinship and male domination. Yet in the context of African American identity politics, the image of the mother takes on a special significance (quite different from the one attributed by Sykes). As the lines of the spiritual suggest and as Saidiya Hartman (2007) has recently emphasized, 'to lose your mother' is a central metaphor for the tearing apart of social ties during the era of slavery and the transatlantic slave trade. In the autobiographical account of her journey to Ghana of the same title, Hartman reflects on the desire to return and the ultimate impossibility of reconnection. She quotes a person who had done the DNA testing and on viewing the results remarked that 'he felt more lost than before. Now he was estranged from an ancestral tribe as well as the country of his birth' (2007: 90).

In spite of the fact that 'homecoming' in the sense of a family reunion may turn out to be an illusion (I will deal with this issue further below), the attractiveness of ethnicized belonging persists and therefore needs to be critically examined. While sticking to the discursive framework of diasporic identity claims, PGH are in many ways a move away from pan-Africanist projects of political solidarity and resistance, since they focus much more on the individual and his or her cultural affiliation.

Gina Paige herself gave a clue as to how the urge to know one's individual roots was shaped in the U.S. context when she spoke about the disadvantage of African American children whenever their schools held events such as 'International Day' or 'Cultural Week', during which students are asked to present their family's cultural heritage. Whereas Italian-American, Polish-American or Irish-American children had access to such cultural resources, African Americans could not say where they were from. Africa was too broad a category and too differentiated in order to function as a linkage to an 'Old World' heritage.[33]

This dilemma has wider implications in terms of political subjectivity. In contrast to other minorities who came as immigrants to the U.S.A., the lack of ethnic affiliation (intrinsically linked to their slave status) contributed to the perception of African Americans in strictly 'racial' terms, 'regarded for centuries as inherently unassimilable … [and kept] from taking a full part in American society' (Frederickson, quoted in Shain 1999: 84). This perception began to change with the Civil Rights Movement and the growing participation of African Americans in the U.S. public sphere and political establishment (i.e., through the Black Congressional Caucus).[34] Genetic ancestry testing refers back to the prioritization of ethnicity in the U.S. multiculturalist setup. Some of the clients who were interviewed for promotional purposes by the company African Ancestry affirm this sentiment: 'I never knew what to answer, when people asked me where I am from. But now I can say: Sierra Leone!' (retrieved 3 March 2011 from http://www.africanancestry.com/testimonials/index.html). Paradoxically, by emphasizing their origin elsewhere, customers ultimately affirm their belonging to U.S. civil society. In times of political and economic neoliberalism, where the individual is central, ethnicized gene/alogy apparently allows African Americans to stake their claim on what Henry Louis Gates, Jr. calls 'the American tradition' (2007: 164) of multiculturalism and the capitalist spirit of self-realization with greater vigour. In order to work in that manner, this middle-class identity needs to be framed in terms of a specific contribution to the American 'success story' of limitless opportunity.[35]

However, the effects of genetic ancestry testing are not limited to the U.S. sociopolitical setup. Because it represents ethnic and national units in Africa as the cornerstones of the conceptualization of genetic kinship, the reverberations of the practice across the Atlantic need to be analysed. A starting point for such an analysis is the debate over diasporic 'homecoming' that is currently advanced in some African settings.

The Game of Difference and Belonging in African States: The Case of Ghana

One of the prominent African Americans who featured in the aforementioned PBS series *African American Lives* was Oprah Winfrey, who had previously declared her strong affiliation with 'the Zulu people' in South Africa: 'When I'm in Africa, I always feel that I look Zulu. I feel connected to the Zulu tribe' (quoted in Gates 2007: 151). The popular image of the Zulu is that of a nation of warriors who, under the leadership of the legendary figure of Shaka, built one of the strongest African military states in the nineteenth century and also resisted European colonialism. This focus provides a counter-image to the racist ideology of African primitivism and barbarity that for a long time has also affected African Americans. In Afrocentric heritage conceptions, the wealth and power of African empires (another prominent example would be the West African Asante) features prominently. Moreover, African Americans have vigorously fought the apartheid system and expressed their political solidarity with the black majority in South Africa. Oprah Winfrey's fascination with the Zulu tradition is part of that diasporic (identity) politics. Her symbolic identification works independently of personal genealogy and it does not really matter whether or not any 'Zulu' could have been transported to the Americas during the transatlantic slave trade.

When she received the results of the genetic ancestry testing in *African American Lives*, she was declared 'Kpelle', a group in present-day Liberia she did not know much about before. Nevertheless, she exclaimed: 'That's me … I'm Kpelle. I feel empowered by this.'[36] Henry Louis Gates, Jr. concludes: 'And no doubt the Kpelle will welcome Oprah as a long-lost sister, just as warmly as the Zulu have done' (2007: 164). This prognosis is probably right, given Oprah Winfrey's generous financial commitment to various projects in South Africa. Winfrey's reported reaction accentuates the identity-formative potential of the revelatory moment of genetic ancestry testing. However, the question remains over whether a test result that defines a person's maternal line as 'Akan', 'Yoruba' or 'Kpelle' makes any difference in terms of how African Americans are perceived and treated when they come to Africa as travellers, pilgrims or repatriates. Gates' comment indicates that this is not necessarily the case; rather, the test results are fitted into previously existing networks of relations and adjusted to mutual horizons of expectation.

In order to illustrate these dynamics, I will turn to the situation in Ghana, where genetic ancestry testing has been taken up as the latest feature in the public discourse on the 'homecoming' of the diaspora. For the past twenty years, the Ghanaian state has been very active in reaching out to African Americans, who are addressed in a language of kinship as long-lost brothers and sisters. On the one hand, this attention is expressed in heritage tourism that focuses on the commemoration of the slave trade. Here, the 'return' of the diaspora is celebrated in general terms in the form of specially designed festivals and pilgrimage tours along the slave route. On the other hand, African Americans are called upon to 'come home and invest' – and thereby to make a concrete commitment to Ghana. The recent 'Joseph Project', initiated by Jake Obetsebi-Lamptey, who was between 2005 and 2007 Minister for Tourism and Diasporan Relations in the cabinet of President John Kufuor, included plans for the establishment of a so-called 'gene map'.[37] In the official statement that accompanied the launch of the Joseph Project, the necessity of such a genetic database was explained as follows:

> To irrevocably establish the genetic link between our returnees/pilgrims and the homeland, we intend in the medium to long term to collect DNA samples from across the length and breadth of West and Central Africa. With this genetic database map we would hope to be able to establish for every returnee/pilgrim interested, a personal report on his/her antecedents: to be able to organise visits to the villages of the ancestors. (Jake Obetsebi-Lamptey, Ghanaian Minister of Tourism and Diasporan Affairs. Retrieved 3 March 2011 from http://www.ghanatourism.gov.gh)

Undoubtedly, this statement is framed within the logic of genetic identification that I have outlined above. It asserts (rather erroneously) that there is even a possibility to determine even the village from which one's ancestors came. Similarly clear are the limits that are put on this connection: quite in accordance with the idea of recreational genomics, the reference to kinship remains firmly anchored within the framework of tourism and investment that has dominated the discourse on African American homecoming even before the genetic ancestry testing became popularized. From the perspective of the Ghanaian tourism industry, genetic ancestry opens up yet another attractive business opportunity. Some private tour operators already cooperate with companies in the U.S.A. in order to facilitate 'genetic journeys'. That means that, even if a database of its own, as envisioned in the Joseph Project, may not materialize due to financial and other constrains, the announcement speaks of African actors' awareness of the needs of Diasporans and also of the latest trends in the homecoming business. By promoting gene mapping and genetic ancestry tracing, the Ghanaian state aims to maintain its leading position in the competition over the tourism and investment potential of African Americans.

If the newly created genetic identities were as powerful as the company advertisements claim, the test results, next to affirming the symbolic attachment expressed in homecoming, might also challenge Ghana's status as a prominent destination in quite unforeseeable ways. In the statistics of African Ancestry, Ghana features only as a minor player, with apparently less than ten per cent of clients showing a corresponding match – so the promotion of genetic ancestry testing could eventually lead to unintended consequences, as African Americans could begin to prefer other destinations due to their test results.[38] So far, this does not seem to be the case, as genetic ancestry is not the only factor that determines notions of belonging and modes of self-definition. Other aspects include practicability or previously established relations (Oprah Winfrey has not simply abandoned her South African projects after receiving her latest test results).

For example, Gina Paige told me of one of her company's customers who was very emotional about the testing and its significance for his sense of self. His results apparently pointed towards Nigeria. However, because Nigeria does not have the reputation of a recommended tourist destination, he decided to join a tour to Ghana that has been organized by a woman whose results pointed in that direction. Similarly, one of my African American interlocutors in Ghana was quite enthusiastic about the availability of the new technology. She and her son had done the testing with different companies – her own was with the Genographic Project (https://genographic.nationalgeographic.com/genographic/journey.html), while her son did his with African Ancestry. On the impact of the results, she said:

> it was interesting to see that we shared the same markers. But mine was less precise than his – mine just said West African while his said Sierra Leone. So we might not have any roots in Ghana here. But when I got my results, I was a bit disappointed, because it did not tell me anything new … Well, mine was also much cheaper, I paid only $100 while he paid close to $300. So I guess that they have a better database and you also pay for that. But Sierra Leone, this is more precise; it gives you at least an idea. For me as an African American woman, this is an important starting point. (Personal conversation, Elmina, 1 August 2007)

The fact that these tests did not indicate any gene/alogical linkage with Ghana did not hinder her from continuing to travel there. After all, Ghana was the first African country she had visited and it had made a strong and lasting impression on her. The symbolic significance of genetic ancestry did not erase the importance of other emblematic points of connection, be it the tangible evidence of the slave trade in form of Elmina Castle and Dungeons or the concrete personal experiences that made her want to come back to Ghana after her initial trip. Thus, different users of the testing service are highly flexible in terms of what they make of their results. They could either fit it into already-existing imaginations of belonging or come up with new constructions of their senses of self.

Consequently, the impact of the tests on those communities 'defined as ancestors' (Rotimi 2003: 158) also varies. In the BBC *Motherland* programme, the British-Caribbean protagonists were taken to African villages whose inhabitants embraced them enthusiastically. Yet this welcoming gesture went along with clear expectations of support that emphasized the status of the 'genetic cousins' as Westerners. This is similar to previous homecoming moves in Ghana, where African Americans have been granted land and symbolic titles by local authorities who expect a significant effect on community development in exchange. Once the affirmation of African ancestry leaves the realm of symbolic kinship and enters the sphere of political affiliation, the situation gets even more complicated. A case in point are the demands for dual citizenship, as they have been expressed for quite some time now by a growing faction of Diasporan homecomers in Ghana (and elsewhere). During the festivities of the Joseph Project, Ghanaian politicians were once again confronted with such demands, when Diasporans repeatedly called for the restoration of their 'African citizenship' (Imakhüs Nzinga Okofo during the Reverential Night in Cape Coast Castle, 31 July 2007).

Jake Obetsebi-Lamptey, who initiated the Joseph Project and the gene map, clearly distanced himself from the possibility that any claim of political belonging could be deduced from the genetic testing:

> The state does not come in at all; it is an individual project of finding one's roots. There is no such thing as automatic citizenship. Perhaps there will be ethnic citizenship, since it is on the level of ethnicity, it has nothing to do with the state – it cannot be a government thing, because it predates the government of Ghana. (Interview, 6 August 2007)

However, even if in the case of Ghana nobody has based a claim for national citizenship on his or her test results, political implications are beginning to emerge – a case in point is the proliferation of a recent chieftaincy dispute through the impact of a group of African Americans who sided with one fraction of the dispute on the basis of their genetic linkage (Delpino forthcoming). And Israel has also been confronted with demands for citizenship on the part of some South African Lemba, who base their identity claim as one of the lost tribes on genetic testing (cf. Azoulay 2003).

Obetsebi-Lamptey's statement therefore indicates some of the challenges of genetic identity politics at the interface between individual identification and collective categorizations: 'natural belonging' is at once evoked and called into question; and the seeming stability of communal boundaries gets dismantled.

Genetic ancestry testing can thus be said to add a new dimension to the notion of biological citizenship, as it has been advanced by Nicolas Rose and Carlos Novas (2005). To these authors, biological citizenship denotes all those 'citizenship projects that have linked their conceptions of citizens to beliefs about the biological existence of human beings, as individuals, as families and lineages, as communities, as populations and races, and as a species' (2005: 440). Given its reliance on the linkage between DNA, history and identity, facilitated through the science of genetics, genetic ancestry testing can be regarded as one such project, which indeed represents a reterritorialization of biological citizenship, occurring 'along national, local, and transnational dimensions' (ibid.). While the rhetoric is heavily saturated with references to roots, land and territory, suggesting the boundedness of identity, the practice of genetic ancestry testing entails many dimensions that defy any such confinement but rather speak to the flexibility of identity arrangements in the new constellation.

Conclusion

This chapter has addressed the interface between notions of symbolic and biological kinship in the highly charged field of African /American identity politics. Genetic ancestry testing can be considered a continuation of older identity projects with other means, as it relies on mystified notions of origin, ancestry and belonging that have shaped popular Afrocentrism in the diaspora as well as the discourse of cultural nationalism in postcolonial states such as Ghana. Moreover, it does not always supersede previous identifications, but rather follows certain genealogical lines while leaving others aside.

At the same time, genetic ancestry testing forms part of a new biosociality (Rabinow 1996), where individuals establish novel social arrangements on the grounds of various biological constitutions – in the case of ancestry testing, these are the haplogroups that are aligned to certain ethnicities.

In order to grasp this latter aspect, Bob Simpson (2000) has come up with the suggestive term of 'imagined genetic communities', hereby playing on Benedict Anderson's (1983) influential 'reflections on the origin and spread of the nation-state'. Simpson is interested in the transformation of existing categories such as race or ethnicity on the grounds of genetic knowledge. He makes the point that 'the raw data of human sameness and difference (what might be called the fatality of human genetic diversity) … begin to inform the notion of ethnicity or what it is to be "just like us"' (2000: 3). Yet the dynamics of genetic ancestry testing involves more than that, as it plays on the multiple cords of sameness and difference. On the one hand, it is about being 'just like them', i.e., identifying with an imaginary African authenticity presented as 'ancient tradition'. On the other hand, genetic ancestry testing is clearly about the affirmation of a diasporic African American self.

Genetic ancestry testing (as a technology and an embodied political practice as well as a consumer product) criss-crosses the Atlantic in many ways: from the historical diaspora-constellation to the collection of genetic data; from the specific context of U.S. multiculturalism and its insistence on ethnic belonging up to the charged encounter between a test-person and the representatives of a genetically defined culture of origin. The very interplay between cultural heritage projects and biologically framed lines of inheritance that becomes evident here is a powerful indicator of the close entanglement between history, science, culture and politics in the 'new age' of genetics.

Notes

1. Acknowledgements: fieldwork for this chapter was sponsored by the Graduate School Cultures and Societies in Motion at the Martin-Luther-University Halle-Wittenberg. The School also made possible a research stay at the Department of Anthropology at the University of Chicago. Thanks to Stephan Palmié for hosting me there. I would like to thank Patsy Fletcher for her great hospitality in Washington DC. She also facilitated a meeting with Gina Paige, to whom I am grateful for sharing her thoughts. Moreover, I would like to thank Rick Kittles and Peter Forster as well as my various interlocutors in Ghana and the U.S.A. for their willingness to talk to me. David Skinner and Richard Rottenburg have offered very helpful and constructive criticisms.
2. On the emerging conversation between anthropology and the new genetics, see Pálsson (2007). Other important areas where the new genetics are discussed in public are health, including reproductive medicine and forensics (cf. Rabinow 1999; Rapp 2000; Lazar 2004).
3. See Michael Lynch et al. (2008), who use the notion of 'truth machine' to discuss the production of forensic evidence through DNA fingerprinting. My own understanding here is broader, referring to an idea of objectivity and definitude in representations of the new genetics.
4. For critical analyses of such representations, see Almond and Parker (2003); Goodman, Heath and Lindee (2003); Hubbard and Wald (1993); McKinnon (2005); van Dijck (1998).
5. For a comparison of company profiles, see 'Ethnic Origins DNA Testing Company Comparison', http://www.isogg.org/eochart.htm (retrieved 3 March 2011). For a critical discussion of several homepages of companies offering genetic ancestry services, see Greely (2008).
6. For the latter, see, among others, Bolnick et al. (2007); Brodwin (2002); Brown (2002); Faubion and Hamilton (2007); Palmié (2007); Nelson (2008a, 2008b); TallBear (2008).
7. This term has been widely used with regard to commercial genetic testing services, be it for ancestry or medical diagnostics, as envisioned by companies such as 23andMe. For a critical approach towards the latter, see Hunter, Khoury and Drazer (2008); van Ommen and Cornell (2008).
8. Other authors have emphasised the inextricable connectedness of social and scientific worlds as a form of coproduction (cf. Fleck 1935; Knorr-Cetina 1981; Collins and Pinch 1993; Lösch 2001; Jasanoff 2004; Reardon 2005). In other contexts, such as Brazil, genetic ancestry testing is very much part of the rewriting or confirmation of bigger stories about collective histories and identities, impacting more directly on the imagination of

the nation rather than the individual self (see Santos and Maio 2004). The complex relationship between individual and collective identities in the new genetics also becomes evident in the case of biobanks, e.g., the well-known example of deCode Genetics and the Icelandic database (Pálsson 2007; Fortun 2008).

9. Of course, there are also other contexts in which genetic ancestry testing plays a vital role, for example, in the Irish diaspora (Nash 2008) or among British Caribbeans (Skinner 2006), as well as in countries like Lithuania (Dauksas 2007).
10. For an exception, see Rotimi (2003).
11. Advertising slogan of African Ancestry (retrieved 3 March 2011 from www.africanancestry.com).
12. On the multiple constructions of the Anderson sequence, the reference genome on which all mtDNA-based comparisons are founded, cf. M'Charek (2005). On the gendered ideology underlying the determination of descent through mtDNA or Y-chromosomes, cf. Nash (2004).
13. Another form of testing is the so-called admixture test, which claims to determine percentages of a test-person's European, African, Asian or Native American ancestry through an analysis of so-called ancestry informative markers (AIMs) in nuclear DNA.
14. The U.K. equivalent to the PBS series has been *Motherland: A Genetic Journey*, which drew considerable public attention towards genetic ancestry testing. Here, the focus was instead on 'ordinary' black British citizens. The entanglement of notions of citizenship, belonging and heritage underlying this particular programme deserves critical attention of its own: see Campbell (2007).
15. The other company that was involved in the testing was Roots for Real in the U.K. In contrast to African Ancestry, their customer base is much wider. Their homepage features three faces that correspond to the common-sense racial classifications 'African', 'Asian' and 'European', and they proudly announce to use 'what is considered to be the largest available global geographic database of human mtDNA'. They also put an emphasis on ancient migration history, 'thousands of years into the distant past, when Europe and other continents were settled by prehistoric tribes and peoples' (retrieved 3 March 2011 from www.rootsforreal.com).
16. For an analysis of the representational strategies of *CSI* with regard to the production of truth claims, cf. Cole and Dioso-Villa (2007); Lynch et al. (2008: ix–xiii).
17. A person could have a maximum of 16,384 direct ancestors only 14 generations or 350 years back (Shriver and Kittles 2004: 615).
18. My use of terminology is not strictly centred on the academic programme of Afrocentricity as it is advanced by Molefi Kete Asante and others (cf. Asante 1987); rather, I refer to a broader heritage framework which is shared by many African Americans who claim a connection to African culture.
19. This is in contrast to African DNA's explicit reference to conventional genealogy, where the interviewing of one's (elder) relatives always plays an important role.
20. The only place where the old imagery is still prevalent is the section of the website containing details on the company (see http://www.africanancestry.com/about-aa.html, date accessed 3 March 2011).
21. See Palmié (2007 and Chapter 8, this volume), who elaborates on the divinatory dimension of genetic ancestry testing.
22. See 'Susan Kidd African Ancestry Reveal' on YouTube (www.youtube.com/watch?v=Bb_NkNZYw-Y&feature=related, date accessed 3 March 2011).

23. Another epistemological (as well as ethical) difficulty in the construction of the comparative databases of African Ancestry and other companies such as Roots for Real arises from the fact that to a large extent these databases were initially produced for medical purposes (i.e., cancer research) and only later commercially exploited for the ends to which they are now put. Thus, while customers are assured that none of their genetic material will be stored or passed on to third parties, the same standard does not hold true for the samples that constitute the database.
24. Cf. Bolnick (2008) on the use of the 'Structure' computer program in the analysis of DNA material and the imprecise conclusions about genetic differences along the lines of 'race' that are often drawn from the statistical exercise. For a detailed discussion on the meaning of statistics in conceptualizing 'race', see Hacking (2005).
25. See the outcome of the EU-funded PUG (Public Understanding of Genetics) project, which looked at the impact of the new genetics on the formation and articulation of social identities; cf. Wade (2007).
26. On the dynamics of racial classification in the U.S.A., see Fields (1990); on the power of classification in general, see Bowker and Star (2000); Skinner (Chapter 2, this volume).
27. See the heated debates over racial discrimination after the devastating destructions of Hurricane Katrina (Hartman and Squires 2006).
28. See the interviews with African Ancestry customers conducted by Geertje Couwenbergh (2006).
29. The names of non-public figures have been anonymized.
30. Fatimah Jackson (2001) also argues for the specific needs of African American patients. On the ongoing explanatory power and relevance of racial classifications in medical research and practice, see Hacking (2005). For a critical view on the new trend of racialized medicine, see Duster (2006); Fullwiley (2007); Wald (2006).
31. Note that in its initial online presentation, African Ancestry visually brushed over this (otherwise acknowledged) reality by displaying the features of very dark and thereby stereotypically marked 'African' man.
32. On the powerful adoption of such heritage discourse among Scottish-Americans, see Basu (2007); among the Irish, see Nash (2008).
33. On the alternative notion of a black public sphere, see Baker (1994); Squires (2002).
34. Another important case in point is the debate over 'Native American DNA' and the racialization of ethnicity connected to it (see TallBear 2008). This has also affected African Americans who can claim historical linkages with Native American groups, but have recently been excluded from tribal membership and benefits (cf. Johnston 2003; TallBear 2003).
35. Apparently, her Zulu identification was also backed up by a genetic test – which shows that the conclusions from the genetic data are arbitrary at best. Tests taken with different companies may lead to different results, depending on the composition of their databases as much as on the interpretation of the results.
36. On the broader dimensions of the Joseph Project, see Schramm (2008).
37. According to Gina Paige, most of the clients' DNA samples point to Nigeria, followed by Cameroon and Sierra Leone. The high percentage of 'Nigerian matches' could also be due to the fact that Rick Kittles spend a long period of research for his cancer project in Nigeria, where he collected lots of DNA samples.

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8

Biotechnological Cults of Affliction?

Race, Rationality and Enchantment in Personal Genomic Histories

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My contribution to this volume is somewhat of a postscript to a forum essay that I published in the *American Ethnologist* a few years ago (Palmié 2007). A good deal of my argument in that article revolved around what even some of my most sympathetic critics took to be a purely polemic analogy between the rationality of divination as described in classic ethnographies and that of present-day genomic analyses, particularly the genomically enhanced ancestry searches known as 'personal genomic histories' (PGH). The present occasion gives me a welcome opportunity to address these concerns. In what follows, I will only briefly restate my arguments for why I think this was not only not an analogy, but an attempt at suggesting possibilities for establishing what Bruno Latour (1993) might call an epistemological symmetry that makes short shrift of a supposedly science-driven disenchantment of the world.[1] And then I would like to make matters worse! I will do so by speculating about how public representations of consumer demand for, and consumer satisfaction with, PGH might be analysed in terms of another classical anthropological topos: that of initiatory cults of affliction.

Lest you might think that this now really is a frivolous exercise, let me add here that I take my point of departure from a theoretical stance akin to what the late Alfred Gell (1999), in his call for a nonreductive anthropology of art, called 'methodological philistinism'. Gell notes that social scientific analyses of religion have tended to cleave close to what Peter Berger once called 'methodological atheism' – that is, a principled and systematic bracketing of questions about whether religious postulates might be 'true' in any literal sense. Recall here the famous closing lines of Evans-Pritchard's (1956: 322) *Nuer Religion* where, after more than 300 pages on

Nuer practices and utterances concerning the divine, he throws up his hands and conceded that when it comes to the content of what one might call 'Nuer religious experience' (whatever that may be), the anthropologist has to cede terrain to the theologian. If so, asks Gell, what then of aesthetic experience? Why do we think we need to relegate the one to the theologians but assume that we can safely speak about aesthetics – as if the 'truth' of art or, in Gell's terms, the effects of particular 'technologies of enchantment' were as self-evident as the idea of 'kwoth' was to the Nuer in the 1930s – or, for that matter, as the Catholic Trinity appears to have become to Sir Edward Evans-Pritchard, Victor Turner or Dame Mary Douglas after their conversion to Catholicism.

But Gell goes a bit further than merely positing agnosticism *tout court*, and this is where things become interesting for me. In particular, he notes that the 'technologies of enchantment' that produce aesthetic (or religious) experience among their consumers tend to rest on the prior 'enchantment of technologies': artistic practice in his case, ritual in many others. But of course, we need not stop here, for what this is ultimately about is an approach towards the creation and circulation of value in social life. And here I would like to focus Gell's insights on the practice of recruitment of individuals and groups, through technologies of genealogical reckoning, into social identities and relations conceived both as storage points and conduits of value. Obviously, in most human societies (though, of course, in widely divergent elaborations) descent functions as a powerful technos of recruitment – evoking as it does, at least among Europeans and Americans, notions of unwilled, non-negotiable consubstantiality to a degree where the truth of identities becomes popularly pegged not just to where you're at, but where you're coming from. Given the deep roots of arboreal images in the Western 'knowledge of begetting' (genealogy) and given also its deep linkages with the vertical transmission in time of property and properties (i.e., not just estates but also membership in estates), this perhaps should not overly surprise us.[2] Yet if what the French medievalist Marc Bloch (1949) once called '*la hantise des origins*' continues to hold us in its thrall, and if, for some of us, biogenetic descent provides the key to its ineffable mysteries, then there is no reason as to why anthropologists (of all people) should bracket biotechnological means of genealogical past-making as beyond our epistemological ken, and abandon them to molecular biologists and genomic scientists telling people 'who they really are' Marks (2001) and therefore how they ought to relate to each other.

On the contrary, and irrespective of what STS can tell us about scientific praxis as such, perhaps we are better served by heeding Max Weber's (1978: 506) point that the mystifications arising out of the increasing control over our lives of highly rationalized but ultimately occult (for the layperson, that is) expert knowledge call forth their own forms of reactive re-enchantment.[3] Since we will be dealing with contemporary American society in the following text, I shall simply make a point akin to David Schneider's (1980: 23) argument about how American notions of kinship as biogenetic relatedness rest on the belief that science will truthfully tell us what biogenetic relatedness (and so kinship) consists in. Hence, if theology and aesthetics ought not to serve as epistemological dumping grounds for anthropologists concerned with religious experience or the consumption of works of art, then science shouldn't be either for those of us interested in what one might call, with a nod to Appadurai (1986), the social life of the 'knowledge goods' that scientific praxis places at people's disposal.

That said, let me briefly return to my *American Ethnologist* essay. Part of the question that originally motivated it was how a notionally cognatic kinship system could possibly support the maintenance and reproduction of what Americans call 'races': that is, a structure of corporative descent groups in which, thanks to the so-called principle of hypodescent, the politically dominant group reproduces itself by perpetually disenrolling people of supposedly 'African' (or perhaps better: 'black') descent from its genealogies. But of course, it works very well – if only because (contrary to widespread belief) membership in American racial collectives has in principle very little to do with bodily surfaces. Phenotypes do work as handy props for visualizing 'race'. So do various techniques of the body or other learned performative capacities. But, deep down, 'race' is a matter of invisible essences conceived of as heritable – though by no means in the kind of limitless bilateral fashion corresponding to most Americans' basically folk-Mendelian views of heredity and relatedness in the abstract.

There is nothing particularly biological here, to be sure. This is a fact that was nicely driven home when genomic analyses appeared to reveal that none other than Nobel Prize winner and belatedly self-outed white supremacist James T. Watson possessed, as journalist Robert Verkaik (2007) put it in London's *The Independent*, 'a DNA profile with up to 16 times more genes of black [*sic*] origin than the average white European'. Now bracketing the question of what in the world 'genes of black origin' might be,[4] who, in this instance, cares what Jim Watson thinks he is or, for that matter, looks like? Clearly, as in the case of Franz Josef Gall, the famously pea-brained founder of phrenology (Gould 1981), poetic justice was at work here, one might say, for in a sense Watson's disparaging pontifications concerning the intellectual endowments of people of African descent simply came home to roost. Although one would still want to ask why socially 'black' people *of* African descent are rarely accorded the same kind of attention when they spout off comparable views – the controversy over Leonard Jeffries' 'sun' and 'ice people' comes to mind – one cannot help but note that the attraction of the Watson story involves a distinctly subcutaneous moment.

This also became clear in the struggle between the white and black descendants of Thomas Jefferson over burial rights in Monticello, which revolved around the moral implications of probabilistically ascertained molecularbiological correspondences in the Y-chromosomes of some of their members. What was at issue in this instance was the significance of the idea of shared biotic substance for the commitment to and maintenance of ancestry-based 'racial' identities, and the reshuffling of rights and obligations that the acknowledgment of kin relations across the conceptual boundaries of such identities might engender. Here the disappearance of transracial kin relations obeys a logic that anthropologists know quite well – if mostly in the context of unilineal kinship systems, where we have long been wont to regard the phenomenon of 'structural amnesia' as a key to the reproduction of such social orders.

But of course, it isn't really hard to see that the reproduction of American 'races' – and so the enduring racialization of American social life – requires the production of no less systemically necessary dark zones of genealogical consciousness. As the Jefferson-Hemings or Watson cases demonstrate, these can normally only be illuminated in individual instances, and even then only by the seemingly extrapolitical authority of an expert discourse capable of removing the source of such authority from the realm of the social – for example, by projecting it onto the 'facts of nature' it merely claims to render legible.

This, of course, immediately brings me to divination. Regardless of the scale of technology mobilized, if we can accept that inductive (as opposed to inspired, or 'mantic', in the original sense) forms of divinatory revelation are based on principally rational procedures ('technike') aiming to uncover previously unknown facts about the world by putting known facts under novel descriptions allowable within a specific epistemic order, then there should be little reason to reject a priori comparing ethnographically known oracles with the modes of knowledge production that underlie contemporary forms of genomic identity arbitration in public consultational praxis.[5] But there is more to it than mere formal symmetry. No less than, say, the Zande poison oracle contemporary genomics cannot but import into its highly technical operations a set of assumptions about the world it aims to elucidate, as well as a code for translating the signs it produces – dead chicken in one case, allele frequencies in another – into a language that renders these 'findings' comprehensible in terms of the questions the knowledge-producing instrument is supposed to answer. This is so because contrary to, for example, Evans-Pritchard's (1937) famously misguided bracketing of 'science' as a socially unconstrained idiom of thought in *Witchcraft, Oracles and Magic*, both the Zande poison oracle and contemporary molecular biology are first and foremost instruments of situated social praxis. As such, they both answer not just to abstract standards of internal logical consistency but to the thoroughly socialized concerns of their practitioners and clients. Thus, in disclosing the 'hidden' or 'invisible' agencies and essences that – again in the eyes of both clients and practitioners – appear to shape particular social arrangements and events, they stabilize and reproduce the cultural order which threw up the questions such oracular systems purport to answer in the first place.

No matter then how much practitioners of genomics may protest their nonbelief in the biological existence of 'races' and tend to define their samples in terms of 'biogeographical variation' or 'continental ancestries', as soon as the findings thus produced are translated back into the language in which the question they are supposed to answer was originally formulated, we are back in the thoroughly racialized social worlds all of us – including molecular biologists and population geneticists – inhabit day in, day out.[6] This is a world where 'race' is no less 'real', and just as embodied in the biotic substance of American citizens, as the witchcraft substance is in the bellies of otherwise seemingly normal and indeed potentially unsuspecting Zande kinsmen. Once we leave the realm of probabilistic reasoning and begin to identify, say, K2 Y-chromosome haplotypes as evidence of Arab or East African ancestry, we are back in the world where place begins to connote race. The latter example is not arbitrary, for this is precisely how the results of a recent British study of Thomas Jefferson's Y-STR haplotype (King et al. 2007) were immediately read by the American press (Wade 2007). Interestingly, however, interpretations drifted not towards East African (i.e., 'black') or Arab descent, but towards Jewishness – though all of these (biogeographically equally plausible) solutions would have effectively barred Thomas Jefferson himself from burial in Monticello only a half century ago. But such highly mediated genomic trivia are really only the tip of a rapidly emerging iceberg of genuine nastiness.

As we speak, vast sums of money are being poured into genomic investigations that proceed from sample populations defined by recourse to the conventional, census-based racial classifications, only to restate them in molecular biological language as, for example, medical risk distributions among named racial groups in the U.S.A.: a genuinely scientific and in itself eminently rational equivalent to the logic that, in the late 1990s, led to the statistical disaster that became known as 'driving while black'.[7] Harking back to a brilliant formulation by Karen E. Fields (2001), I call this moment 'racecraft' – a principle operative in various often entirely well meant and intentionally anti-racist endeavours that nonetheless work to underwrite the experiential, if not conceptual reality of 'race'. They do so by suggesting that 'race' (like value, capital or indeed witchcraft) has a substantive rather than relative ontological status; that it can be found in individual bodies and objects, rather than in the relations obtaining between them. Among the vectors of 'racecraft', I would argue, figure PGH – individualized genomic ancestry profiles that are nowadays offered by an increasingly large number of usually web-based commercial providers.

One of them, African Ancestry, Inc. is directed by my colleague Rick Kittles at the School of Medicine of the University of Chicago. I do not want to unduly focus on African Ancestry, Inc., but to give you an idea of the dimensions of the industry in genomic ancestry services, according to an interview Kittles gave to *Black Enterprise* in 2005, by then – only two years after the founding of African Ancestry, Inc. – the company's revenue totalled approximately $300,000 (Gilbert 2005). And that was before Henry Louis Gates, Jr. propelled Kittles to national fame by hiring him for his PBS miniseries *African American Lives* and *Finding Oprah's Roots*. In my *American Ethnologist* article, I go to considerable lengths in trying to unpack what may be wrong, epistemologically as well as politically, with the product companies like African Ancestry, Inc. are selling. What interests me here is the supposed ultility of their services. Beyond sheer curiosity value, what kinds of strategies of self-enracination and identity management are they presumed to enable and direct?

Henry Greely (2008) has recently gone to some lengths in trying to answer that question from a systematic comparison of web-based information posted by commercial DNA service providers. Quite obviously, however, it can really only be answered ethnographically – and with significant exceptions such as Nelson (2008a, 2008b) and Schramm (Chapter 7, this volume), to this day, properly ethnographic research on African American PGH consumption still remains to be done (or, at least, to be published). Nevertheless, on a level of public representation, what we know both about the nature of genealogies as legitimatory charters and about the nature of American racism, public representations of genomically enhanced ancestry searches do seem to point beyond a more generalized North American obsession with genealogy that seems to have gained momentum in the last two decades of the twentieth century. Here, I think, lies an ample field for investigating how contemporary American norms of 'cultural citizenship' have come to be articulated with the projection of credible claims upon patrimonialized 'heritages', 'cultures' and 'pasts' tied to notions of horizontally shared biological descent. As Nash (2004: 26) phrases it:

> Genetic testing companies draw on the currency of cultural discourses of identity in which identity is both central to political discourses and depoliticised in the service of consumer capitalism. In offering genetic tests to establish genealogical facts, these enterprising ventures play on ideas of possessive individualism in which possession of knowledge constitutes identity. Our genetic identities, we are told, are already in our possession 'in every cell of our body' but require technoscience to reveal them to us. Buying Y-chromosome or Mitochondrial DNA tests we buy back what is figured as already ours and what already constitutes us, but in a newly knowable and productive form.

Nash is concerned here with a generalized logic of commercialized PGH products – one that, as she points out in her contribution to this volume, actively bodies forth new forms of 'genetic ignorance' (figured as a lack of self-knowledge that one *ought* to possess) which the consumption of PGH services promises to redress. Indeed, as she argues, the African American case may well be modular for strategies of establishing the utility of genomic ancestry services by playing on narratives of displacement, loss and recovery even in targeting groups whose ancestors were not enslaved Africans. But this may be precisely the point. Obviously, the fact that genomic technologies allow black people in the U.S.A. to participate in an American ideology of 'rootedness' (by making it possible to bypass documentary obliteration by biotechnological means) does not make their investment in 'Old World origins' less American (cf. Schramm, Chapter 7, this volume) – or less ideological, for that matter.[8] Nonetheless, what has already come to be called 'recreational genomics' may play a somewhat different role in the case of African Americans aspiring, and financially capacitated, to engage in the genomic discovery of their biotic Africanity than it does in, say, the case of socially white Americans eager to get their known 'immigrant roots' genomically ratified, or surmount gaps in the genealogical record.[9]

In part, this is so because while in the contemporary U.S.A., 'Americanness' has come to encompass and encourage the public expression of forms of 'white' ethnicity, the 'mark one or more' question in Census 2000 and Barak Obama's electoral success notwithstanding, 'nonwhite' identities and statuses are far more ambiguously articulated with an ideology that nowadays renders, for example, Irishness or Italianness largely unremarkable, optative modifiers of white American national belonging. Thus, the same privilege is still decidedly not granted to those whose social 'blackness' does not allow them to forget their descent from victims of a regime of slavery – a system that obliterated their 'African roots' to a degree where conventional means of documentary ancestry tracing will invariably run into the snag presented by a patronym inherted from a slaveholder or selected ad hoc upon emancipation. Malcolm Little's famous gesture of substituting his last name by the mark of a deliberately willed absence speaks to this issue – an 'X' to be filled by the significance of future action undertaken on behalf of the 'Lost-Found Nation of Islam in the Wilderness of North America'. There is no slaveholder isonymy here, to be sure. But Malcolm X's was only one solution to the pervasive sense of an inability of being a 'Negro' and an 'American' at one and the same time that W.E.B. DuBois, more than a century ago, diagnosed as standing at the heart of a peculiarly African American dilemma: that of inhabiting a social identity that not only threatens to severely curtail your material life chances and aspirations but that also limits your chances of ever fully 'belonging' to the imagined community that is the U.S.A.

One might think here of the resolution historically afforded by revelatory practices of exploring what Marilyn Strathern (2005) calls systems of 'coimplications' within a given semiotic and epistemological system such as W.E.B. DuBois's contemporary Noble Drew Ali's refiguration of 'the Negro' as the 'Afro-Asiatic' or Marcus Garvey's brilliant play on the trope of exodus and return to a Zionistic African 'transnation' of the future. But one might also think of the more recent ways in which the American Yoruba Movement's divinatory 'roots readings' fashion a sense of 'deterritorialized' racial belonging that explicitly negates mundane citizenship (in the U.S.A. or Nigeria, for that matter [cf. Clarke 2004]). Based in the notionally infallible authority of the Ifa Oracle (though, of course, open to mistaken or interested interpretations on the part of its human operators), such 'roots readings' are perhaps the closest functional equivalent to PGH today – except that while genomic ancestry searches displace the sources of divinatory authority downwards from the realm of the social into that of the biotic, 'roots readings' do so by upwards allocation towards the realm of the divine.[10] Yet even though the latter move deprives its users of much of the legitimacy that the American public tends to invest in forms of knowledge production that manage to sail under the flag of science (even when they concern matters such as 'intelligent design'), the logical mechanism involved here is uncannily similar. In both cases an essentially hermetic (if not outright esoteric, in Weber's terms) technos is mobilized to reconfigure the painful experience of exclusion from the imagined community that is the U.S.-American nation into one of inclusion – religious in one case, genotypical in the other – in a community of reborn New World Yoruba or fellow bearers of, say, L-2 haplotypes.

My own fieldwork in the American Yoruba Movement's spiritual headquarter, Oyotunji Village (a theocratic community in coastal South Carolina), dates back too long and was too spotty to enable me to effectively draw upon it here (Palmié 1995). But given the Cuban roots of the American Yoruba Movement, and the similarity of modes of knowledge production involved, let me extrapolate a bit from what I know of the function of oracular diagnostics in the Afro-Cuban religion *regla de ocha*. For here it is clear that – much as in the case at hand – divination can reveal that persistent, otherwise inexplicable misery and suffering is grounded in the fact that one is entertaining wrong ideas about one's identity. So goes the story repeated again and again by Cuban practitioners of *regla de ocha*: terrible things happen to you for no good reason. You exhaust every conventionally available mode of remedy. It only gets worse. Finally, someone says: why not consult a diviner? What the oracle reveals is that you have been hailed by an *oricha* (deity) and need to submit to initiatory rites that transform your body into a vessel of the divine and induct you into a new line of ritual kinship and descent. After some agonizing deliberations, you undergo the costly and time-consuming ceremony, and are reborn into a form of identity you should have been inhabiting all along: that of a child of a god – *omo oricha* or *hijo de santo* – which is one of the names given to initiated practitioners of *regla de ocha*. The deity now relents and will open the roads to good fortune – provided you will serve it in a series of lifelong sacrificial prestations.

This is what Afro-Cuban divination does: it opens the roads to the future by putting past and present under a new description – a moment that one of the commentators on my *American Ethnologist* essay, Stefan Helmreich (2007), quite brilliantly compared to Charles Sanders Peirce's concept of abductive inference that reimagines the past in order to secure new future relations to it. It is indeed a fine example of the kind of recursive logic Peirce (in Buchler 1940: 151) outlines in the following way:

> The surprising fact, C, is observed;
> But if A were true, C would be a matter of course,
> Hence, there is reason to suspect that A is true.

In the absence of empirically convincing refutation (or prior knowledge to the contrary), this, Peirce says, 'will include the preference for any one hypothesis over over others which equally explain the facts' (ibid.).[11] For him, abduction functions as a vital logical step in the operation of intuiting and adopting explanatory hypotheses (and so, in a sense, the potential generation of new, albeit fallible, insights).[12] In our case, such reasoning which transforms current states of being by recursively providing them with a cause (and hence a potential course of action to be taken to change such states of being) potentially 'abducts' the reasoner into an epistemic order underwritten by the premise of A's truthfulness.[13] As John Janzen (1994: 167) puts it apropos African therapeutic institutions, in the divinatory processes preceding diagnosis the 'character and role of spirits [think Peirce's 'A'] is more like a hypothesis in which relationship to concrete events in individuals' lives needs to be established'. Indeed, given the eliminative procedure involved in many divinatory systems, 'guessing to the best hypothesis' is very much what is involved here. Yet once acceptance for the oracle's 'assertive acts' (Zempléni 1995) or 'inventive definitions' that reorder 'the world's furniture' (Holbraad 2008: 101) has become – again in Peirce's sense – the basis of further perceptual judgments, and a pragmatic ground for action, not only will 'A' turn into a likely baseline of explanations for surprising facts 'D', 'E', and 'F'. Rather, once assimilated into what Peirce calls a habit of inference, oracular verdicts may now also come to drive a wealth of future-oriented deductions premised on 'A' or, for that matter, sustain inductive inferences that confirm (the now ontologically transformed facts) as mere effects of 'A'. Abductive recursivity, in other words, may (under certain circumstances) attain systemic proportions.

If this appears to be what is going on in the case at hand, it is because the remedy the Afro-Cuban oracle prescribes also binds you into a cycle of mutual affirmation: by submitting to the 'rule of the oricha' (whence the name '*regla de ocha*'), you make your sense of selfhood contingent upon the reality of the gods. This is, of course, the nature of 'cults of affliction' which indeed tend to operate in an 'abductive' mode: as in the case of Victor Turner's Ndembu *mukishi* ancestor spirits that 'catch' and afflict those of their descendants who neglect or forget them, the ritual aiming to redress the resulting illness or misfortune both reaffirms the ancestor's hold on the present (spirit and victim are, after all, kin) and opens up a path towards a future of novel social relations that take the form of cult associations composed of former sufferers whose vengeful ancestors chose to manifest in one of various specific ways, and that specialize in healing the resulting afflictions. Divination again is the 'abductive' key (in both the logical and social senses of the word) to such transformations. As Turner (1967: 10) put it, 'One is punished [by *mukishi*] for neglect of their memory, but at the same time one is chosen or "elected" to be a go-between in future rituals that put the living in communication with the dead' – thereby, I would add, reproducing the reality of one's status as a Peircian 'abductee' (or alternatively 'inductee' into the cult group) along with that of the mystical being that controls, as it were, the entire process.

Much of this, I would argue, holds for the chains of relationships established through Afro-Cuban divination between humans and the *oricha* into whose cults some of them eventually become initiated, thus joining ritual kinship networks that are completely independent of mundane norms and practices of relatedness.[14] But it also might hold for those whose experience of racist 'deduction' from ideologically normative forms of relationality in American society becomes reconfigured, by genomic means, into one of 'induction' into novel forms of consociation and diffuse, enduring solidarity among bearers of, say, L2 haplotypes. If initiation into the cult of an *oricha* links you with former fellow sufferers with whom you now share a ritually established degree of consubstantiality with a divine entity that (among other things) allows you to lend your body to its manifestation during possession trance, then genomic cults of affliction would seem to perform a rather similar kind of 'cultural work' – provided you invest the same kind of credence in the reality of genomic identities and relations as practitioners of regla de ocha normally invest in the reality of the *oricha*.

I do not know, of course, what Turner's Ndembu might have thought about such matters, and we still have no clear ethnographic picture what consumers of PGH services actually 'do with' – i.e. how they imaginatively process and act upon – the genetic information that links them to demographic entities in Africa (be they 'countries' or 'tribes').[15] Still, as Alondra Nelson's (2008a,b) and Katharina Schramm's (this volume) ongoing research indicates, we ought to reckon with a far more sophistication, eclecticism, and not the least, skepticism in African American projects of what Nelson calls ‘affiliative self-fashioning’ than the purveyors of genetic test kits and the media would have us believe. ‘Away from the glare of the media’, Nelson writes, ‘test-takers can exercise latitude in determining the import of genetic ancestry analyses’ for their sense of selfhood and relatedness’ (2008a: 775); they ‘come to genetic genealogy testing with particular questions to be answered, with mysteries to be solved, with personal and familial narratives to complete’ (2008a: 767); they ‘are judicious not only about the types of genetic genealogy tests they purchase, but also about the significance of the test results’ (2008a: 767), some of which they may reject – not just because a low degree of spatiotemporal resolution may render them irrelevant to their projects but because more specific findings at times ‘may challenge … prior expectations’, conflict with ‘other evidentiary bases of self-perception and social coherence’ (2008a: 767) or induce what Nelson calls ‘genealogical disorientation’ by failing to orient them towards meaningful relational possibilities with other people or collectivities. What is more, even when the results appear to match their expectations, African American PGH consumers do not simply convert to genomically ascertained ‘identities’ as if becoming reborn into a form of evangelical Christianity. For many of Nelson’s informants, ‘the receipt of genetic facts opened up new questions about identity and belonging, rather than settling them absolutely (2008a: 770), and so led to a ‘course of deliberate and strategic negotiations [between different resources for individual and collective identification] in an effort to create kinship orientation’.

No doubt, these are important and salutary findings.[16] And they are echoed by David Skinner’s (2006: 482) conclusions in a well-balanced critique of hastily dyspeptic generalizations in social scientific assessments of the new genomics. ‘Users of this new genetic information,’ he writes:

> seem to be able to manage the apparent contradiction between treating biology as a source of truth about ancestry and viewing themselves as active constructors of their own identities. There are important links here to changing values around consumption, personal development and individuality. Part of the appeal of these forms of genetic testing is the way that they appear to provide a means of reconciling increasingly individualised accounts of self-identity and the constitution of political communities in racialised form.

Yet neither Nelson’s ethnographic data nor Skinner’s call for a more nuanced understanding of the social uses of genomic technologies really contradict the oracular nature of the functioning of PGH in contemporary American society for which I have been arguing in my *American Ethnologist* essay. This is so not merely because most of the better ethnographic accounts of divination depict oracular clients not as credulous dupes (or ‘prelogical’ category mistake-makers), but as rationally-minded, principled sceptics who expect what Evans-Pritchard called ‘experimental consistency’ from their encounter with a revelatory technology (see also Swancutt

2006).[17] To point out as much would be trite. As trite, in fact, as when one of the critics of my *American Ethnologist* essay saw fit to pronounce that the 'thousands who seek ancestry tests are not forced to do it, and geneticists are no more venal in trying to persuade them to part with their $200 than anyone else in our market-centered society' (Weiss 2007: 243). For no doubt: as Nelson shows, African American PGH consumers aren't simply credulous snake-oil buyers. 'What if it's true?', one of her informants asks when pondering her genomically ascertained ancestry. And what, indeed, if it weren't!

But of course, aside from the repertoire of 'secondary rationalizations' (or 'secondary elaborations of belief' to use Evans-Pritchard's more precise term) that can always be drawn upon to explain counterintuitive or otherwise unsatisfactory divinatory verdicts ('the poison got polluted', 'the operator failed to obey taboos' – 'the database is patchy for certain regions', 'the AIM markers are too diffusely distributed') or the fact that the answers to questions asked tend to be beyond experiential verification, there are two other fundamental factors at play in both instances.

The first is that, if I may be permitted to use a Winchian paraphrase of Evans-Pritchard's text, 'Americans are only sceptical of particular DNA results and not of genomics in general, and their scepticism is always expressed in a scientific idiom that vouches for the validity of genomic testing as an institution'.[18] This may be to overstate the case. Yet, as Nelson herself observes:

> Genetic genealogy testing opens up 'ethnic options' … to blacks in the US and the UK that may have been previously unavailable. However, the affiliative self-fashioning it may spur is enacted from within what might be understood as the 'iron cage' of the genome. The testing promises to reveal elusive knowledge, yet the particular longings that root-seekers of African descent seem to feel when they resort to it are shaped by distinct histories of slavery and the continuing realities of racial oppression. Root-seekers' sense of autonomy and empowerment may come at the cost of acquiescing to a classificatory logic of human types that compounds, rather than challenges, social inequality. (2008a: 776)

Their agency, she concludes, is of a 'limited type, unfolding from within less mutable social structures' and, I would add, must (if 'in the last instance') take recourse to the collective representations that these very structures place at the disposal of those who would seek to fashion identities that are not only morally plausible but socially viable (cf. Nash, Chapter 6, this volume).

In line with this, the second factor involved in both oracular systems on ethnographic record and PGH consumption relates to the fact that what Nelson calls 'affiliative self-fashioning' and Faubion and Hamilton (2007) call 'the consumption of identity') can be cast, without much trouble, in terms quite akin to those Turner (1967, 1981) deploys to describe, for example, the protracted remaking of persons and social relationships in Ndembu cults of affliction. Here, too, such processes are triggered by a divinatory revelation that an ancestral spirit is afflicting a member of the community, proceed to the 'induction' of the former sufferer into a therapeutic cult with whose members he or she will learn to identify and – in most instances – an 'abductive' reordering of the social field surrounding him or her. This is by no means a mechanical process. Nor are its results a foregone conclusion.[19] And it would certainly not be otherwise in the case of Afro-Cuban religion where people tend to go through lengthy struggles with themselves (and significant others) over whether to 'heed the call of the oricha' (some of them, in fact, never follow up on the divinatory revelation of a need to get initiated) or whether to drift back into the realm of some other source of potentially redemptive institution such as biomedicine or the law. What is more, they also experience the integration into new ritual kinship structures and sacrificial duties after initiation not as an instantaneous change of self-conception à la 'I was lost but now I'm found'. Instead, for them, too, 'abduction' into the cult of a deity and the social networks it entails is a drawn-out process of reorganizing (and, as Kristina Wirtz (2007) has shown, renarrating) the self in its consubstantial relationships not only to the divine and the disciplines it enforces upon one's body and will but towards the new constellations of sociality that initiation makes possible. In other words, what initiation into *regla de ocha* is 'all about', to me, looks a lot like what Nelson calls 'affiliative self-fashioning' through the consumption of genomic ancestry services.[20]

Still, and this is the point: in each instance, what remains beyond transformation is the categorical apparatus that, hinge-like, enables and organizes the efforts at overcoming an unsatisfactory state of affairs – be it pervasive misfortune or illness in the one case or those aspects of the workings of 'racecraft' that consign African Americans to a position where their social blackness inescapably indexes African origins, but where, by the same token, their shared history of slavery and racial oppression appears to bar them from full 'cultural citizenship' in a nation that has come to ideologically valorize 'diversity' expressed in reference to Old World origins. PGH may well allow sufferers from genealogical affliction some latitude in choosing and expressing how they personally would prefer to gyrate around this double hinge of Old World ancestry and its genomic ascertainment. But to cite Nelson's (2008a: 776) conclusion once more, 'their sense of autonomy and empowerment may come at the cost of acquiescing to a classificatory logic of human types' grounded in the thoroughly routinized categories of a society in which genomics 'compound … rather than challenge … social inequality'.[21]

Here at least, practitioners of *regla de ocha* tend to be Durkheimians in the strong sense, in that they acknowledge that without receiving human attention, the *oricha* would simply curl up and die (though not, of course, without leaving the world in a shambles too). And so, it stands to argue that this says more about Cuban and (*mutatis mutandis*) U.S. society than it says about either the genome or the gods – both of whose reality is, of course, beyond empirical verification in the everyday worlds of those who avail themselves of the transformative powers of their interpreters. What is more, I might add that instances of spirit possession, when *oricha* speak to the faithful through the bodies of their initiated mediums, might rather fruitfully be compared to cases where 'race' becomes 'visible' in the bodies of people whose phenotype fortuitously conforms to stereotypical ideas of what 'white' or 'black' people 'ought to look like'. After all, the historical scandal of 'racial passing' – like that of 'fake possession' – always did much more to stabilize the idea of the reality of 'race' (or the gods for that matter) than to undermine it (Palmié 2004; Wirtz 2007). Again, you don't normally (or even only easily) see these things, hence the need for divination – or PGH.

But rather than ramble on about such – I think utterly fascinating – correspondences and the analytical openings they seem to provide, let me close by re-emphasizing that the picture I have tried to paint here largely arises out of public representation of PGHs and not from close ethnographic studies of how genomic ancestry products are actually consumed. We can certainly say that PGH providers targeting African American consumers advertise their services as the divinatory entry into a cult of affliction that reduplicates, for believers in biotechnology, what Afro-Cuban religions and the American Yoruba Movement have been offering long before polymerase chain reaction processing became commercially viable. Obviously, the technologies mobilized, as well as what Latour might call the scale of the resulting networks, differ dramatically (though the public revelation – in *Sports Illustrated*, no less – that Ozzie Guillen, head coach of the Chicago White Sox, is an initiated priest of the Ifa oracle, certainly made for some 'elongation'). But in both cases, to call any (or all) of this 'enchantment' may already be to pull the wrong epistemological switch. The real question is not whether what results is rationality or enchantment – and I think Gell was right when he posited that technologies of enchantment are only mediate instrumentalities, be they works of art whose auratic impact on our experience remains inscrutable, rituals that transform our bodies and social states in largely ineffable ways, divinatory instruments that alter our relations to the world by uncovering otherwise unknowable levels of meaning and relationships or, indeed, polymerase sequencers that reveal our biotic 'ancestry' in the form of allele frequencies that are similarly occult – i.e., inaccessible to commonsense rationality. In Gell's view, their efficacy, in each and every case, rests on the prior social 'enchantment' of the technology in question.[22] Thus, the real question is whether, and to what degree, the knowledge produced by and through such technologies will become subject not just to social institutionalization but to experiential routinization as a 'natural ground' on which to base conceptions of selfhood and moral community.

This is a point that Durkheim, a long time ago, made very forcefully – and I think we would still do well to consider it in pondering not just the much-vaunted (and by now obvious) 'geneticization of everyday life' in general, but in ascertaining how exactly the consumption of the commercialized products of genomic science may enable (or constrain and foreclose) specific practices and strategies of 'affiliative self-fashioning' and identity management among no less specific social constituencies. To do so will demand close empirical attention to how PGH users' sumptuary epistemologies configure the 'social life' of the knowledge goods that genomic science sets into public circulation. To try and peek into the black box of science (or theology, aesthetics or economics for that matter) may be a necessary precondition for such endeavours, if only to ascertain the import of doctrinal regimes of scientific orthopraxy on the shaping of the product (which was part of my goal in the original *American Ethnologist* essay). Still, ethnographies of its consumption will be the only way to accomplish the former goals. Notable exceptions notwithstanding, such work still remains to be done.

Notes

1. To forestall further potential misunderstandings, let me point out that my use of the term ‘divination’ is decidedly not figurative and so differs fundamentally from the way in which, for example, Margaret Lock (2005) uses it in her discussion of the destabilization of molecular biological genetic determinism under the impact of epigenetics in the case of probabilistic modeling of susceptibility for late-onset Alzheimer’s disease. Unlike her, I am not concerned with ruptures across domains of scientific knowledge but with potential forms of closure that the consumption of revelatory knowledge goods appears to promise to their users.
2. Cf. Klapisch-Zuber (1991) and Bouquet (1996) on the evolution and functioning of the ‘family tree’ imagery in such processes – from biblical and medieval antecedents to Darwin’s transposition of heredity from the social into the biological realm, and on to W.H.R. Rivers’ ‘genealogical method’. As Nash (2003: 181) so aptly puts it: ‘As a device that historically ordered the transfer of property, genealogy continues to be characterised by the language of ownership, possession and inheritance whether spoken about in terms of bodily substance (genes or blood) or memory, culture, heritage, or genealogical information itself.’
3. If, at times, only as a last-ditch effort to render the workings of the ‘dialectics of modernity’ morally comprehensible through forms of symbolic recoding of that which is otherwise too meaningless to bear.
4. Obviously, Verkaik could not possibly have meant genomic snippets that code for phenotype. If the good Dr Watson ‘looked black’, chances are that he would never have attained the education, in the U.S.A. of the 1940s and 1950s, that prepared him for his co-discovery of the double-helix. And, even if so, who would have cared about his genome?
5. I would like to once more emphasize that what I am concerned with in the following is the oracular production of personal knowledge, not the attempts to address complex ruptures across multiple scientific knowledge domains that Lock (2005) glosses as ‘divination’.
6. Part of what is at issue here is that while the inductive reasoning underlying genomic science may work perfectly well when it comes to assigning random samples of quantifiable units (individual DNA profiles) to classes (statistically ascertainable populations sharing certain genomic configurations), the problem – as Charles Sanders Peirce (in Buchler 1940: 152f.) pointed out – is that once such findings are translated into what Peirce calls ‘characters’ (i.e., complex properties not amenable to mensuration), induction loses its logical grip. As Peirce puts it in regard to the question of how to test the hypothesis that a man is a Catholic priest, that is, ‘has the characters common to Catholic priests and peculiar to them’, the problem is that ‘characters are not units, nor can they be counted, in such a sense that one count is right and every other wrong. Characters have to be estimated according to their significance’. So it is in the case at hand. Even if it were possible to come up with genomic unit features common to inhabitants of Sweden or

Zimbabwe and peculiar to them, what makes someone a Swede or a Zimbabwean, or a descendant of Swedes or Zimbabweans, is not a matter of molecularbiological mensuration but of social signification. In fact, Peirce's example is highly felicitous for my purposes: while there certainly are people who descend from Catholic priests, such ancestry (while genomically provable, for example, through paternity tests) is irrelevant when it comes to the inheritance of the 'characters that are common to Catholic priests and peculiar to them'.

7. It has its even more sinister equivalent in the mushrooming apprehension and sentencing rates for individuals allocated – somehow, we don't quite know how – to the category 'African Americans' (which, from a genetic point of view, ought to include a vast number of phenotypically and – even more importantly – socially 'white' people, among whom one could count James Watson, if one believed in that particular 'technology of enchantment' currently known as genomics).
8. As Nash's (2003) work on Irish ancestry-seekers in New Zealand, Australia, Canada and the U.S.A. would seems to indicate, the irony in the U.S. case is that an ideology that seems to characterize settler-societies dominated by descendants of Europeans has become available to the descendants of those Africans whose violent uprooting, transcontinental abduction and exploitation under racial slavery played a considerable role in underwriting the emergence of the notion of a white settler commonwealth in the the U.S.A. in the nineteenth century (cf. DuBois 1935; Roediger 1993). It would surely be cynical to say that what DuBois once called the 'wages of whiteness' have been transformed into the 'wages of Americanness' and so has become accessible to some (though certainly not the majority of) African Americans. Still, to what extent this is an unqualified good or merely has opened a new market for the consumption of multicultural 'identity goods' (Faubion and Hamilton 2007) remains to be seen.
9. If anything, genomic ancestry projects appear to promise to fill the void created by the condition of ultimate social deracination – the brutal 'anti-kinship' of slavery – that to this day casts its shadow on the narratives of collective origin that U.S. public culture tends to prescribe for people recruited (by birth, appearance or, more recently, individual choice) into that nation's 'black minority'. Although one should not expect the websites of commercial PGH providers to post all the customer feedback they receive, even a cursory look at such fora gives a strong impression of the sense of satisfaction and relief African American PGH consumers express at being hailed by a set of allele frequencies into what North American racism long denied them: a rooted Old World identity underwritten by one of the most powerful expert discourses available today – and thus a collective 'past', the alleged absence of which Melville Herskovits once defined as one of the key 'myths' underwriting the exclusion of African Americans from what we, today, might call 'cultural citizenship'.
10. Perhaps not surprisingly at all, in both cases the mechanism that Zempléni (1995) identifies as the 'human speaker's evacuation as the subject of the (divinatory) enunciation' is key to the credibility of the divinatory untertaking: in the first case, nature speaks through the allele frequencies ascertained by means of genomic sequencing, while in the second gods and the ancestors speak through the configurations of signs produced by the oracular instrument. See also Boyer (1990: 72–75) for an interpretation of the logic of divinatory truth-production as a pure form of indexicality implying an unmediated causal link between the state of affairs clients want to know about and the description of that state of affairs provided by the divinatory instrument.

11. As, for example, in the case of the a priori forclosure of interpretations of the Jefferson L2 haplotype as evidence for Arab or East African descent.
12. 'The abductive suggestion', writes Peirce (Hartshorne and Weiss 1960: 113), 'comes to us like a flash. It is an act of insight, although of extremely fallible insight. It is true that the different elements of the hypothesis were in our minds before; but it is the idea of putting together what we had never before dreamed of putting together which flashes the new suggestion before our contemplation.'
13. In what follows, I hope the reader will pardon my playing somewhat fast and loose with the resonances of logical categories such as 'abduction', 'induction' and 'deduction' with the rather different resonances these terms have in contemporary everyday English – instructive as I think they are. I will flag the more egregious instances of this practice by putting the phrase into quotation marks.
14. Including – and that is a key difference that I have explored elsewhere – mundane notions of 'race' as an ancestry-bound status (e.g., Palmié 2002). For practitioners of Afro-Cuban religions, there is nothing problematic or even only curious about a socially 'white' person becoming a consecrated priest of the cult of a notionally African deity. After all, it is the deity that 'elects' its future 'children' – according to some, before we are even born. Despite all other historical relations and shared theological concepts, this is a notion decidedly not shared by adherents of the American Yoruba Movement (Clarke 2004; Palmié 1995).
15. Despite his famous attention to symbolic detail, Turner notoriously falls silent on instances of what Holbraad (2008) calls 'divination failure' (i.e., the patent incongruity of oracular pronouncements with perceived states of affairs – cf. Swancutt 2006).
16. As are Nelson's (2008b) considerations of the 'authentic expertise' that Rick Kittles commands as the socially black scientific director of African Ancestry, Inc. Nonetheless, given Gilroy's (2000) and Jackson's (2006) strictures against North American regimes of racial authentification, and Greely's (2008) analysis of African Ancestry, Inc.'s marketing practices, Nelson's conclusions in the latter essay will necessarily remain open to contestation.
17. Just like occasional inconsistencies or even cases of blatant 'divinatory failure' rarely damage oracular institutions beyond repair (metadivinatory practices – i.e., the testing of oracular outcomes by different kinds of oracles – are, after all, ethnographically not unknown, and indeed present in the Afro-Cuban case), so has, for example, the discreditation of lobotomy as a clinical praxis not led to the abandonment of neurosurgery. It is the 'hopeful' (in Peirce's sense) anticipation of truthful future knowledge that maintains the institutional framework (and its 'utility', from the consumer's point of view).
18. My reference here is to Peter Winch's (1970) rephrasing of a key passage of *Witchcraft, Oracles and Magic* where he systematically changes 'mystical' in Evans-Pritchard's text to 'scientific' in his. In my case, the original reads: 'Azande are only skeptical of particular oracles and not of oracles in general, and their skepticism is always expressed in a mystical idiom that vouches for the validity of the poison oracle as an institution' (Evans-Pritchard 1937: 350).
19. As Turner's (1967: 359–93, 1981: 156–98) case study of affliction by an Ihamba spirit clearly shows, they can be highly contingent. More generally, Janzen (1994: 168) writes 'whether or not [initiation] actually happens, there being many "drop-outs", depends on the novice's progress through the early stages of therapy and counseling, on the novice's or kin's means, and to the extent to which the cult is controlled by an elite that restricts access to its basic resources'. All of this, I would think, holds for the case at hand as well.

20. And here I should add that it also costs a lot of money – more, in fact (even in Cuba – and in both absolute and relative terms) than a combined Matriclan™ and Patriclan™ test as currently offered by African Ancestry, Inc.
21. If the analogy with Turner's Ndembu case holds any water here, then the picture would obviously be a rather disillusioning one: if we bought into Turner's Mancunian brand of functionalism enhanced by conflict sociology, then all that undergoing divination (for this, read purchasing PGH products) achieves is to lay bare endemic social contradictions in individual cases of distress. Therapeutic cult associations (for this, read new modes of 'ethnic' affiliation), in turn, do little more than patch up the social fabric (by providing 'palliative' options for new relational practices among the initiates) until the next victim of the aggravations produced by a conflict-prone combination of matriliny with virilocality – and, one should add, colonialism! – (for this, read combination of ideologies of meritocratic equality with racist exclusion) succumbs to social and psychological pressure and consults a diviner (for this, read sends in a mouthswab).
22. The visual splendour of a Trobriand kula canoe (does it really make exchange partners more generous?), a painting attributed to Rembrandt (is it truly an 'original'?), a Zande divination verdict (is the person 'really' a witch?), an ancestry certificate issued by African Ancestry, Inc. (is an L2 haplotype really evidence of, say, Timne, Zulu, Gikuyu or Hausa descent?) or the stunning revelations concerning James Watson's 'blackness' (but what about his social 'whiteness' and professed racism?) are, ultimately, cut from the same cloth: we don't exactly know how it works, but they affect our social relationships – not only to the object of knowledge in question but to each other. Beyond that point, it is neither 'theology' nor 'biology' that takes over. It is folksy 'commonsense' in all its well-known institutional embeddedness and reificatory exuberance.

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