A New Race Paradigm?

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In recent years there has been an increase in the number of studies by jurists, anthropologists and sociologists on the resurgence of the biological concept of race in medical research, the medico-legal field and genealogy. They have shown how DNA data that is seemingly of the utmost neutrality and technicality is in fact bringing into play a whole set of sociopolitical and economic values, choices and relationships.

Reviewed: Bliss, C., *Race Decoded. The Genomic Fight for Social Justice*, Stanford University Press, 2012, $24.95; Kahn, J., *Race in a Bottle: The Story of BiDil and Racialized Medicine in a Post-Genomic Age*, Columbia University Press, 2013, $27.00; Schramm, K., Skinner, D. & Rottenburg, R. (ed.), *Identity Politics and the New Genetics*, Berghahn Books, 2012, $99.00; Wailoo, K., Nelson, A. & Lee, C. (ed.), *Genetics and the Unsettled Past*, Rutgers University Press, 2012, $28.45.

In an article published in May 2013[1], biologist Michel Raymond and novelist Nancy Huston thought it necessary to remind the social sciences community that the existence of "races" in the human species constituted an indisputable biological fact established by the latest progress made in the field of genetics. At the same time, we learned that genetics "contents itself with describing" those "realities" without making "any value judgment", whereas the "social sciences", meanwhile, showed culpable ignorance as regards the progress of genetics. In recent years, however, there have been countless anthropological and sociological studies focusing on genetic research into human biological diversity. The social sciences have taken very seriously the fact that new techniques for analysing genetic polymorphisms and the possibility of estimating biogeographical ancestries were forcing them to sharpen their discourse and step away from the somewhat simplistic statement that "races are merely social constructs with no biological reality". Nevertheless, by investigating how genetic polymorphisms are identified, analysed, correlated to a particular group, etc., they also showed the extent to which the "realities" that genetics limited itself to recording were the complex products of a series of operations, each of which involved choices, value sets and hypotheses, and they studied the effects that these new genetic techniques had on the defining of new political and personal identities. In this article we shall present some results taken from recent American books in which these issues are dealt with. Their subject matter is diverse, ranging from pharmacogenomics to the analysis of the relationships between genetics and discourse on kinship; the books are linked by the field of anthropology, in which most of the authors are specialised, which enables them to provide a detailed insight – through their use of interviews and field studies – into the way in which geneticists and biomedical researchers put together their data and give it meaning in accordance with their values and sociopolitical commitments.

[1] "Sexes et races, deux réalités", *Le Monde*, 17/05/2013: http://www.lemonde.fr/idees/article/2013/05/17/oui-les-races-existent_3296359_3232.html

A brief genealogy of genomic knowledge of human diversity

In the first decade of the 21st century, genomics focused on genome variations and the analysis of single-nucleotide polymorphisms, thereby restoring some legitimacy to the notion of "race", which genetics had to all appearances rejected from the late 1970s onwards. Instead, most of the first works on the decoding of the human genome centred on the homogeneity of the human genetic heritage, to the extent that they considered variations to be infinitely negligible in their efforts to reconstruct a complete human genome from diversified samples. They led to Bill Clinton's famous announcement, in June 2000, that the decoding of the genome had established the fact that "in genetic terms, all human beings, regardless of race, are more than 99.9 percent the same". This statement did little to conceal tensions that have since resurfaced.

Indeed, the presupposition that "variation" was so limited as to be negligible had been criticised from the very beginning by certain population geneticists, particularly Luca Cavalli-Sforza who, for a long time, had been studying the way in which the geographical distribution of genetic polymorphisms provided information on the history of human groups[2]. As a supplement to the Human Genome Project, Cavalli-Sforza and his colleagues established the Human Genome Diversity Project (HGDP), which aimed to identify and protect intrahuman genetic biodiversity by prioritising samples taken from relatively isolated populations characterised by pre-existing cultural and linguistic links. They made particular use of the Centre d'Études du Polymorphisme Humain, created in 1984 by Jean Dausset. The HGDP encountered numerous problems, but its aim was subsequently revived in a series of projects (HapMap Project, 1001 Genomes Project, Genographic Project, etc.), which aimed to list intrahuman genetic diversity and store it in online databases that were easily accessible to any researcher, as well as in different projects carried out by private companies.

This interest in genetic diversity in the United States contributed to the emergence of a new paradigm for public health policy, which Steven Epstein called "inclusion", whose overall logic involves focusing on differences in gender, "race" and age, and on the way in which these influence health inequalities and treatment responses, and systematically including this diversity in research protocols[3]. In that context, there is an alignment between the administrative categories established by the U.S. Census and the Office of Management and Budget, which enable the race and/or ethnicity of individuals to be defined, and the categories used in medical research and practice. As Catherine Bliss shows, this logic of voluntarist inclusion, both in medicine and genetics, usually comes from committed researchers from minority groups who explicitly link their research logic with an ethico-political commitment in order to lessen the healthcare inequalities endured by their communities. By doing so, categories of "race" and "ethnicity" no longer appear as negative categories serving as vehicles of control, but rather as "positive" strategic tools enabling inequalities to be condemned and resolved. They are mobilised in a kind of "antiracist racism" which aims to reveal inequalities linked to "race" (whose conception oscillates between social and biological) in order to counter them with specific measures. These battles, which take on new genetic data, are part of the more general framework of the affirmation of diverse ethnic identities and the search for people's "roots" at the crossroads of politics, hermeneutics of the

[2] See Cavalli-Sforza, Menozzi & Piazza, *The History and Geography of Human Genes*, Princeton Univ. Press, 1994. See also, in French, Cavalli-Sforza, *Qui sommes-nous? Une histoire de la diversité humaine*, Flammarion, 2011.

[3] Epstein, Steven, *Inclusion. The Politics of Difference in Medical Research*, Univ. of Chicago Press, 2007.

self and mercantile endeavours, which has characterised the United States since the 1970s and 1980s[4].

The race paradigm

In the light of these developments, the social sciences have seesawed between two positions: repeating and refining positions already stated ("races" are merely social constructs with no relation to any biological reality; the current developments in genetics, under the more neutral term "biogeographical ancestry", mark the "return of race", loaded with the same threats and bias as racialism was before it[5]), or being more mindful of the innovations that can be found in the recent progress made in genomics and the complexity of their uses. Most of the authors reviewed here share the latter vision. One of the shared observations is that the crude statement that "races" are merely social constructs should be abandoned because it does not take sufficient account of the way in which genetic knowledge of human diversity functions today. The idea that "race" is a social construct is widely acknowledged by geneticists themselves, but this does not, in their view, rule out the fact that it also has a biological reality. Biogeographical ancestry is even explicitly presented as the "biological component of race". These genetic researchers are the first to recognise that the racial categories they draw on are approximate and imperfect social constructions. They substitute what Bliss calls "the sociogenomic paradigm of race" for the "race"=biological reality / "race"=social constructs alternative[6]. Over the notion of "social construct" the authors thus choose a Latourian vision that is mindful of the processes of translation, circulation and intensification of these "entities" between laboratory and society, between the various institutions and fields of expertise, and between the past and the present[7]. In other words, it is necessary to update the whole complex task of defining objects and aligning categories used with other pre-existing categories; the task of designing software and technologies involved, and highlighting the hypotheses they include and their limitations; and the task of enshrining values and ethico-political choices, which determine the researchers' interests and method of presenting their results.

The chief merit of these analyses lies in their discrediting of a discourse that is regularly used by genetic genealogy companies and a number of researchers: that of DNA as a "truth machine", a document that is absolutely objective and which, unlike all the rest, does not depend on interpretations. The reality is quite different: in order to be transcribed into manageable entities that have some meaning in the research, business and social spheres, DNA information must be assigned to groups and categories that have names, limits and a history. Key to this is the construction of populations whose single-nucleotide polymorphisms are thought to be the objective markers. In the book by Wailoo et al., the anthropologist Nina Kohni-Laven shows, for example, that the development of genetic databases in Quebec required a set of old genealogical information to be taken from church registers, but clear, fixed diving lines between French Canadians and aboriginal Indians were projected onto this information, which bore no relation whatsoever to the historical reality. Africanists Braun and Hammonds, meanwhile, studied the use of "tribal" categories defining the genetic material of Sub-Saharan Africa in the HGDP databases, showing how they inherited the task of delimiting, homogenising and fixing identities that had been initiated by missionaries then anthropology and linguistics, and which had culminated in the standardised classification

[4] See François Weil, *Family Trees*, Harvard Univ. Press, 2013, which resituates this development within the history of genealogical practices in the United States since the 18th century.
[5] See in particular the work of Troy Duster.
[6] See Bliss, *op. cit.,* chap. 3.
[7] Cf. Hartigan, J., "Is Race Still Socially Constructed?", *Science as Culture*, 17 (2): 63-93.

system of the "African people" developed by Murdock in 1959, serving as a basis for the HGDP studies. Genetic studies therefore rely on the prior work of defining and naming populations, and lend that material an apparent stability and solidity, which unduly fixes and homogenises identities that are actually far more fluid and fragmented.

As the sociologists Rajagopalan and Fujimora showed in their analysis of admixture mapping techniques, these presuppositions are even harder to interpret because they are reduced to algorithms and included in computer programs that researchers then simply have to "get going"[8]. The practice of admixture mapping thus presupposes the existence of relatively homogeneous and clearly delineated "ancestral populations" that are generally thought of in terms of their continent of origin (European, African, Asian, "Native"), of which the populations in question are thought to be the relatively recent mix. It puts forward the idea that it is possible to name and identify these "ancestral populations" and measure their respective contribution in the mixed population. This technique carries out both a "geographical elision" and a "generational elision": geographical insofar as it actually extrapolates rates that are considered characteristic of an ancestral "European" or "African" population from rates of single-nucleotide polymorphisms measured in a "European American" or "African American" population; and generational insofar as it bases itself on contemporary samples in order to estimate the characteristics of "ancestral populations". Admixture mapping studies are therefore "developed from an amalgam of circular logic and presuppositions that back up a particular history (and thereby self-legitimise) at each stage". And yet these analyses are systematically used in genetic genealogies to identify groups of suspects in criminal cases, as well as in biomedical research in order to establish a link between a particular biogeographical ancestry and an increased disease risk (for example prostate cancer among African Americans). While scientists who conceived these models are generally aware of their limitations and at least some of the hypotheses they include, they have also been found to present their results in such a way that blurs the boundaries. In addition, once these models have been developed into software, they can circulate extremely easily and be appropriated by a whole host of actors who are unaware of – or do not clarify – those boundaries.

Race in the biomedical field

BiDil, a racialised medicine marketed in 2004 to treat heart failure among African Americans and studied by Jonathan Kahn, highlights the encounter between new practices in genetic research, social demand and market interests. Since the beginning of the 1990s, the United States government has asked the researchers it finances to organise their data according to social categories of ethnicity and/or race. Even if they can distinguish no biological category, they have an obligation to use one when carrying out their research. The categories created specifically to refer to very localised populations are then understood to be the equivalent of racial groups – even if the items produced do not define race or justify the use of that category[9]. When researchers are explicitly requested to do so, their responses range from silence to embarrassment[10].

[8] See Deborah Bolnick's now-classic paper on the *structure* program, "Individual Ancestry Inference and the Reification of Race as a Biological Phenomenon" in *Revisiting Race in a Genomic Age*, *op. cit*., p. 70 & sqq.

[9] Pamela Sankar, Mildred K Cho and Joanna Mountain, "Race and Ethnicity in Genetic Research", *American Journal of Medical Genetics*. Part A, 1 May 2007, vol. 143A, no 9, p. 961–970.

[10] Fullwiley, Duana. 2007. "Race and Genetics: Attempts to Define the Relationship". *BioSocieties* 2(2): 221-237.

Taking advantage of this silence, on 23 June 2005 BiDil was approved by the Food and Drug Administration (FDA – the US authority responsible for authorising the marketing of new medicines). Manufactured by Nitromed, BiDil is a combination treatment of two vasodilators widely used since the 1980s, but whose patents were due to end in 2007 and 2020 respectively. Its originality does not stem from the novelty of the molecules used but rather from its new racialised patent, approved by the FDA based solely on the fact that clinical trials were carried out on a population made up entirely of African Americans. While everyone involved agrees that race was used as a substitute for naming unknown genetic variations – a last resort while waiting for a truly personalised genomic medicine – nobody has challenged the definition of race used. Race was simply determined on the basis of claims made by the trial patients themselves, which allowed a patient claiming to be 3/8: Black, 1/16: Cherokee, 1/16: Blackfoot, 1/2: White and 1/4: Mexican to join in the trials.

BiDil is the fruit of a collusion of economic and political logic that Kahn deconstructs with great precision. The heart failure market in the United States is worth around 30 billion dollars a year. NitroMed's idea was to divide up the market by creating a captive sub-market based on race. By first showing – untruthfully – that African Americans are both more affected by heart failure and less receptive to common vasodilators, and then providing a clinical trial – largely biased – confirming that BiDil was more effective on that population, NitroMed created a profitable niche market for itself. In order to racialise BiDil, NitroMed relied on a new US government regulation, which, in 1997, ordered the National Institute of Health and the pharmaceutical industry to include women and minority groups in clinical trials. Thus, the BiDil patent merely conformed to the use of racial categories advocated by the US government and defenders of positive discrimination. Many African American organisations saw the medicine as a means of rectifying health inequalities for a population that was historically disadvantaged, in line with the emergence of the right to health during the late 1980s, in order to identify and reduce racial inequalities in terms of access to healthcare.

However, by authorising BiDil, the FDA paved the way for a reification of race as a functional biological and genetic category. Indeed, the development model for BiDil had been used by other pharmaceutical companies in their efforts to develop other racialised medicines such as the VaxGen laboratory's AIDS vaccine, which was thought to work better on African Americans, or Warfarin, an anticoagulant developed by the Bristol-Myers Squibb laboratory, which was characterised by the fact that it worked better on patients with certain genetic variations. After the FDA confirmed this effect in 2007, a number of laboratories offered to carry out genetic screening tests[11], some of which directly targeted Asian and African American populations. The argument was that the target genetic variations were more present in these groups. However, while these laboratories could easily identify the relevant variations individually, Kahn claims that they decided to highlight only the frequency of those variations within a group in order to further divide up the highly competitive market of genetic screening.

Genetic genealogies

Medical research is not the only area in which new techniques for identifying "biogeographical ancestry" are being used. So-called "recreational" genetic genealogies are now offered by a whole host of Internet companies, following the "direct to consumer" model. These companies are part of the general move, particularly marked in the United

[11] 23andMe, DNA Direct, deCODE genetics, AutoGenomics.

States and in the diverse North American diasporas, to rediscover one's roots and "true self" through a genealogy. However, this approach can also be found in Europe. The search for "biogeographical ancestries" is helping to shape new biosocial identities, such as, for example, the online groups that are created around a common Y-chromosome haplotype; above all, however, it revives the old identities, "clans", "nations", "races" and "ethnic groups" that the new genomic techniques tend to include in DNA[12]. In her study of the Swiss genetic genealogy company iGENEA, Marianne Sommer shows how current genetic genealogy categories are reshaping previous perceptions of *Urfolk*, *Homo Alpinus* and the distinctions between the different "historical races" that make up the Swiss nation. iGENEA explicitly claims to provide the genetic profiles that correspond to the various "peoples of origin" (*Urvölker*) of the European population, each with "its own language, its own culture and its own history, but also its own DNA profile" and its own "region of origin" (*Ursprungsregion*). These political and social dimensions can take the form of a "game", such as when Swiss newspapers explain the differences between the inhabitants of Basel and Zurich according to their different biogeographical ancestries; however, they may also be involved in far more serious issues: Sommer shows how iGENEA's analyses, as well as diverse studies of population genetics, have been used by the Macedonian people in order to defend the existence of an original Macedonian identity[13].

This new "genealogical science" has also had a significant impact on personal identity. African Americans have proven to be major consumers of "genetic genealogies", with the aim of identifying the African "tribes" from which their ancestors are thought to have originated; DNA is put forward as the only genealogical material that can be traced back beyond the Middle Passage, the Atlantic crossing made during the slave trade. Customers are given a certificate attesting to their belonging to a particular "tribe" (for example the Mende people of Sierra Leone or the Fulani people of Guinea) along with material containing photos and descriptions of the cultures and making their genetic identity more tangible. Return-tourism is organised, with the option of visiting the "tribes" with which the customer has been affiliated. These analyses use very diverse strategies according to the individual[14]. People may make use of them because they wish to extend their genealogies, because they are searching for their "true self" or because they want to adopt a child or invest in Africa and prefer to do so in their tribe of origin. Many studies also show that this "genetic information" is appropriated in a variety of ways, ranging from a feeling that an absolute truth has been uncovered regarding one's true identity, to more complex identity strategies, whereby some ancestral lines are favoured over others, or more playful approaches in which the individual juggles with a multiplicity of different ancestries. It is regrettable that the studies reviewed here fail to analyse the way in which these estimations of biogeographical ancestry are used in numerous identity blogs and projects, whose proliferation online heralds a new age of "racism 2.0", which combines big data, interactive blogs, new genomic technologies and old nationalistic, racist discourse[15].

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[12] Nash, C., "Irish DNA: Making Connections and Making Distinctions in Y-Chromosome Surname Studies", in Schramm & al., *op. cit.*, p. 141 et sqq.

[13] "Do you have Celtic, Jewish or Germanic Roots? Applied Swiss history before and after DNA", in Schramm & al., *op. cit*., p. 116 & sqq.

[14] "Genomics en Route. Ancestry, Heritage and the Politics of Identity Across the Black Atlantic" in Schramm & al., op. cit., p. 167 & sqq.

[15] See Doron, Claude-Olivier, "L'ascendance biogéographique : génétique des populations et généalogie des individus", forthcoming in Luciani, Isabelle & Piétri, Valérie (ed.), *L'incorporation des ancêtres*, Presses Universitaires d'Aix-Marseille, 2014.

However, while it is certainly true that the notion of biogeographical ancestry can, in a whole host of situations, strengthen and legitimise old conceptions of "race" and ethnicity, it is also true that, in many cases, it deconstructs and rebuilds them in a radically new way. It is therefore particularly relevant to question the complex games of translation, comparison and distancing/distinction between these diverse categories, according to the context, actors, values, etc. Thus, the scientists involved in the genetic definition of "biogeographical ancestries" play with these different categories according to their political and personal involvement in these issues. They all defend a kind of "antiracist racialism" whose categories are flexible enough to allow them to switch continuously between determinist and constructivist positions, combining the biological aspect with the social. Unfortunately, it cannot always be said that they are fully aware of the weight and limitations that encumber the categories they use, or the profound effects these have in a whole variety of social areas. Without doubt, this is where the role of the social sciences and history proves vital.

We can thus conclude our review of these otherwise remarkable studies with one regret: in the many disciplines called on to contribute to these studies, there is *one* significant absence, all the more striking given its omnipresence – that is, it is continually referred to when characterising what are believed to be "novelties" and "ruptures" between "the traditional concept of race" and current events. The missing discipline is *history*. Not a single historian was called on to clarify and complexify the sometimes simplistic view of the history of the concept of race that serves as the background to this research. And yet the specificity of the concept of biogeographical ancestry and current reflections on human diversity can only be analysed if the history of the concept(s) of race has been considered seriously, leaving behind simplifications and clichés. An article by David Jones gives a fine example of this, focusing on the figure of Werner Kalow in order to show that pharmacogenetics became "racial" long before the "paradigmatic rupture" of the 2000s: it was already racial in the 1950s[16]. If we wish to talk about a "return of race", we must be certain that race really had disappeared from population genetics, medicine and anthropology in the second half of the 20th century. We are far from convinced.

Further Reading

Reardon, J., *Race to the Finish*, Princeton University Press, 2004

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Whitmarsh, I. & Jones, D. (ed.) *What's the Use of Race?*, MIT Press, 2010

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Pauline Peretz, "Race et santé dans l'Amérique contemporaine. Entretien avec Alondra Nelson", *La Vie des idées*, 21 February 2012

[16] See David Jones, "How Personalized Medicine Became Genetic, and Racial: Werner Kalow and the Formations of Pharmacogenetics." *Journal of the History of Medicine and Allied Sciences* 68.1 (2013): 1-48.

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