
Guest Editor's Introduction

Genetic evidence and interpretation in history

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Genetic studies of human history often make headlines under such sensational titles as ‘Geneticists rewrite history’, ‘Pig DNA tells a different story of human migration’ or ‘The enigma of Italy’s ancient Etruscans is finally unraveled’.¹ Quite apart from the attention grabbing headlines, the articles speak to the fact that genetic studies are increasingly claiming their place in historical investigations, supplying data and interpretations on long-standing questions of group and individual identity, migration, conquest, health, kinship, technology transmission and more.

So far, historical investigations using genetic data have been most common in pre-historical research, where other evidence is sparse. Combined with historical linguistics it has been used to attempt to map such broad-scale processes as the migrations from Africa in the Stone Age, the spread of agricultural technology from the Near East to Western Europe, or the peopling of the Americas from Asia. More recently, population geneticists and biomathematicians – using ancient or recent DNA, of humans and domesticated animals – have begun to study more recent historical events such as the Anglo-Saxon migrations and the population diversity of the British Isles or the origins of the Indian caste system.² Powerful new techniques that make full genome sequencing on a large scale a realistic prospect, refined methods for working with ancient DNA, and new attempts of increasing the resolving power of genetic chronologies, for instance by using fast evolving micro-organisms associated with humans, promise even broader applications.

The reception of such studies by professional historians has been more than mixed as one of the contributors to this issue documents. In part, historians are simply uninterested or refuse to engage with the new genetic studies, not least because – for historical reasons – they are suspicious of any attempt of defining human populations in biological terms. Other historians who potentially are more open to engage with genetic studies are often doubtful about their scientific value. They are puzzled by the fact that scientists have come up with contradictory interpretations of the past based on genetic evidence. This does not correspond to their understanding of (good) science. Being unfamiliar with the technical and computational

1 *Los Angeles Times*, 17 March 2007; *Guardian*, 18 June 2007.

2 For some recent examples see Weale *et al* (2002) and Reich *et al* (2009).

tools of modern genetics, they cannot evaluate the data and do not know which laboratory to trust. Most importantly, they regard most historical frameworks used in genetic publications as outdated.

Attempts are under way, on a local and broader institutional level, to break down the barriers between the different disciplines and to facilitate dialogue. One such example is the Max Planck Institute for Evolutionary Anthropology in Leipzig, which houses departments for evolutionary genetics, human evolution, linguistics, primatology and developmental and comparative psychology under one roof, thus encouraging collaboration. At the University of California, Los Angeles, a seminar, funded by the Mellon Foundation ‘Transforming the Humanities Initiative’, brought together faculty from linguistics, history, biostatistics, population and medical genetics, archaeology and anthropology to explore the promises and limitations of the new technologies as well as the possibility to undertake collaborative projects that take advantage of the specific values and needs of historians and geneticists.³ Such initiatives mark a clear departure from more common practices that often pitch social and human scientists against natural scientists. The division between the social and the biological sciences is particularly deeply guarded for historical and disciplinary reasons. The significance of the interdisciplinary conversation lies in confronting these divisions and finding a common ground.

Collaboration alone, of course, is not a guarantee against ideological or essentialist interpretations of history. Yet, accompanied by a critical analysis of the tools and aims of genetics to which historians, sociologists and anthropologists of science have much to contribute, it promises a fair hearing of the potentialities of the new genetic tools for history.

An important premise for a fruitful conversation between the disciplines is that genetic evidence is not understood in essentialist, deterministic or reductionist terms. Cultural and historical notions inform the questions, the sampling practices and interpretations of genetic projects at all stages and rather than providing final answers genetic studies establish probabilistic relationships between possible historical interpretations. Genetic evidence thus never stands alone and must always be considered in the context of other evidence. Such a critical understanding will help avoiding some of the pitfalls of genetic history, especially at a time when DNA-based technologies command broad cultural prestige and seem to provide answers to pivotal questions, such as those concerning guilt, innocence and identity.

Besides the intricate questions about the status of genetic evidence, other questions raised by genetic history and human population studies more generally are: How new is the field? Are there continuities with earlier biological approaches to human history? Can we learn from those experiences? What is the relation between biological and cultural history? What do the studies mean for the people that are the subjects of the research? Are there ethical standards?

The papers that follow take up these issues in various interconnected ways. Most importantly, they introduce a historical perspective that makes it possible to highlight continuities and discontinuities to earlier genetic studies and their cultural embeddedness. They address questions concerning the relations between nature, culture and history and, following concrete examples, discuss the role of genetic narratives for nation building, and for group and individual identity. Although mostly cast in the traditional mode of critical social analyses, the studies explicitly or implicitly attest to the importance of an

³ For a fuller description of the project see <http://www.sscnet.ucla.edu/historyandgenetics/>.

interdisciplinary conversation and the necessity of breaking up sharp disciplinary divisions between the social and biological sciences.

In the first paper Veronika Lipphardt follows the American geneticist Leslie Clarence Dunn on his trip across the Atlantic in the early 1950s to study the supposedly isolated Jewish community in Rome. Dunn based his study on new methods to establish gene frequencies in human populations, notably serological techniques. He compared his data on the Roman Jews with corresponding data on Christian Italians and on various Jewish groups in Israel. His aim was not to prove racial differences. Indeed Dunn had contributed to the drafting of the UNESCO Statements on race of 1950 and 1951 had repeatedly expressed the view that biological differences between populations resulted from social and cultural separation, and not the other way round (*Statement by Experts on Race Problems*, 1950; *Statement on Race*, 1951).⁴ Rather than pursuing racial questions, his aim was to study the evolution of gene frequencies in human populations and in this respect any inbreeding that would occur within populations. Before embarking on his study, Dunn's son, a social anthropologist that accompanied his father on the trip, conducted a series of interviews with members of the Jewish community in Rome that supposedly confirmed the antique origin and continuing cultural isolation of the group.

Lipphardt points to continuities between Dunn's serological examination, earlier anthropometric studies, and today's human diversity studies. She highlights the paradox of human genetic approaches that, while aiming to overcome racist categorizations, build on the notion of 'pure' or 'isolated populations' – in Dunn's case a biohistorically distinguished Jewish population – that is similarly problematic. She also points to the impossibility of separating scientific aims, here the genetic study of an endogamous human population, and social meanings, in this case the self-understanding of the Jewish community in Rome, including the institutional settings and the available oral and written accounts that facilitated the Dunns' study and that, in turn, the study cemented.

Staffan Müller-Wille's paper examines the changing reception of the conceptions of race and history of another co-author of the UNESCO Statement on race, French anthropologist Claude Lévi-Strauss. Like Dunn, Lévi-Strauss embraced the view that culture produced racial and biological differences rather than the other way round. Cultures according to the anthropologist were breeding grounds for biological differences. Moving one step further, Lévi-Strauss argued that cultures and biology were open to the same historical processes, a view that according to Müller-Wille only clashes with his structuralist position. The author carefully traces how Lévi-Strauss's anthropological notions and his positions on kinship, history and cultural diversity developed in close interaction with contemporary genetic notions.

The relation between genetics and history as construed in genetic studies of the Indian caste system and of different Jewish communities is the topic of Yulia Egorova's contribution. It points out that studies of genetic history appear nearly exclusively in scientific journals – not least because of the pressure to publish in 'respected' journals. References to historical, linguistic, anthropological or archaeological studies in these publications are scarce and only very few list co-authors from those disciplines. When interviewed, some scientists saw this low-level engagement with historical scholarship as a virtue as in their view it shielded them against bias in their interpretation of the genetic data.

4 See also Dunn, 1951.

Mostly through the mass media, historians nonetheless become familiar with the genetic studies but their reaction is mostly sceptical. As mentioned above, attempts to bridge the disciplinary gaps are under way, even if currently it may appear that ‘genetic history’ is evolving into a separate subdiscipline. Egorova’s interviews indicate that on average historians are more concerned than scientists about the social and political implications of genetic population studies, although they themselves seem to reject the naturalization of such concepts as ‘Jewishness’ and ‘caste’.

The use of genetic studies for the construction of individual identities is the subject of the last paper. Marianne Sommer highlights the backward-looking quality of biohistorical narratives offered by studies in population genetics. Although potentially forming new identities, these are bound to what Sommer calls ‘cultures of remembrance’ that trace historical roots and places of provenance as laid down in the historical record of our genetic heritage. Sommer contrasts this use and interpretation of genetic data to the scenarios oriented towards a hopeful future generated by medical genetics. This does not exclude a strong overlap between the two endeavours as testified, for example, by the recent move of the company 23andMe to offer disease susceptibility profiles in addition to genetic ancestry information. Taking the public Genographic Project, directed by American geneticist cum anthropologist and entrepreneur Spencer Wells, as her main example, Sommer also points to the use of biohistorical narratives for the medialization and commercialization of genetic ancestry testing. Well’s *The Journey of Man: A Genetic Odyssey*, which celebrates the common genetic origins of all humans – a biohistorical narrative fitting to a globalized world – offers a prime example of that genre and its intended role.

From the Dunns’ serological study of the Jewish community in Rome in the 1950s to the medialized and commercialized genetic ancestry testing of the early twenty-first century, the relation between history and biology is thus always at stake. As Sommer and other contributors to this issue indicate, the new genomic categories do not supplant the older social categories of race, caste, population or nation but recast their meaning – not least by providing a scientific underpinning and thus renewed authority to these notions. At the same time, the human genome gains new cultural meaning as archive of human history, irrespective of the many dimensions of human endeavour to which it does not speak. The scrutiny of the categories, which underlie and fuel human genomic studies and their meanings, is thus as urgent as ever, yet rather than the neat separation, the intersection of biological and historical categories is at issue.

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