

Editor's Introduction: The Genetic Challenge to Medieval History and Archaeology

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This issue deals with a topic that may at first surprise a reader of a journal of global medieval history: the use of genetics in the study of the past. Genome analysis has hardly yet been addressed in the context of global history, although it certainly is a matter of global interest. The genomes of Richard III, of the descendants of Genghis Khan, or of the indigenous populations of North America and Australia have been the object of genetic study. Geneticists have addressed Bantu migrations (see Eggert in this issue) and Viking raids (see Hofmann here too). Methodological problems and, sometimes, public misconceptions are very similar across the globe. Still, ›genetic history‹ has not yet raised much interest among historians; if at all, profound skepticism has prevailed. In medieval history, Patrick Geary is one of the pioneers who have critically monitored the use of genetics for historical questions (see his contribution in this issue).

Genetic methods are well established as tools in prehistoric archaeology, and geneticists have often taken the lead in recent debates about migrations and cultural flows in the deep past. Neanderthal admixture, the settlement of the Americas or the expansion of Neolithic culture are well-known cases in point. In historical archaeology, lively debates have begun about the way in which genetic and archaeological evidence can be synthesized. As several contributions (Feuchter and Samida, Brather, Burmeister) in the present issue show, the critique is certainly not directed against the use of genetic analyses and other methods of scientific archaeology to supplement more traditional modes of archaeological interpretation. There is, however, a concern about geneticists' claims that these ›scientific‹ data could supersede the more intricate forms of cultural interpretation by archaeologists. Yet the interpretation of genomic data is an art in itself. They allow calculating relative distance between individuals, and constructing clusters of more or less genetically related samples. As historians and archaeologists we have to insist that defining populations or even peoples does not directly emerge from the genetic evidence – it requires a historical interpretation, which needs to conform to historical methodology. Many geneticists have taken this requirement rather lightly so far, to say the least.

It is thus no coincidence that many contributions in this issue address problems of ›genetic history‹ rather than its impressive potential. If we want to profit from the extraordinary possibilities that the breathtaking progress of genetic methods offers – and all the contributors agree that we should – we need to calibrate our interdisciplinary methodology. This is a scientific as well as a political issue. The emergence of genetics has spurred high hopes in the general public that there can finally be a scientific answer to the fundamental questions of identity: who am I?, and, who are ›we‹? In the course of history, the last word in this matter has mostly passed from one humanities discipline to another: theology, philosophy, history, physical anthropology, psychology; now it is the turn of genetics. Being a Viking, a German,

an American Indian or a descendant of Genghis Khan suddenly seems to matter much to many people; the genes, rather than one's cultural baggage or a neurosis developed in infancy now seems to decide who one ›really‹ is. The media (including scientific journals such as *Science* and *Nature*) exploit and popularize such notions (see the examples in Feuchter and Samida in this issue).

Among humanities scholars, this raises a double concern: first, the historical experience with the race theories promoted by physical anthropologists in the later nineteenth and earlier twentieth centuries shows that a scientific method that inescapably classifies humans by their bodily ›essence‹ is bound to prompt political misuse, from exclusion to extermination. It needs to be acknowledged that geneticists, starting with Cavalli-Sforza, have openly condemned racism and refuted ›race‹ as a scientific category, but that may not be enough. Second, the short-cut identification of genetically defined populations with historical peoples falls far behind the state of the art in the humanities and social sciences. We have made significant progress since the mid-twentieth century in deconstructing collectives. For historians of the nationalist era, nations and peoples were naturally constituted and clearly delineated collective agents – the nation, not the individual was the true subject of history. Since that time, we have learnt much about the ways in which peoples, states and ethnic groups emerge from a constant process of cultural construction, social negotiation and political competition. Methodologically, this means that we cannot take for granted to which degree there is an overlap between the people who believe or are believed to belong to a named (ethnic) grouping, the speakers of a certain language, those who can be distinguished by a recognizable cultural habitus (for instance, in the archaeological evidence), and of course those who share a certain biological or territorial origin. These four types of ›population‹ (in the sense of a group of humans defined by a criterion that we choose for scientific purposes) do not naturally converge in a ›people‹. They may overlap to very differing degrees, and some of these criteria may fade at the margins in broad and dynamic grey zones. As Sebastian Brather argues in this issue, even single cultural criteria may circumscribe rather different groupings. In this complex situation, there is no way in which genetic results can help to define a clear distinction between those who should be included in a people and those who must be excluded – trying to do so would be both methodologically incorrect and politically hazardous.

Again, there seems to be consensus among the authors of this issue that these methodological principles can provide a sound basis for the future collaboration between geneticists, archaeologists and historians. They are as yet not uncontested, but there is growing awareness in the disciplines involved that simplistic models in which genetic evidence could be neatly accommodated are not much help. Much progress has been made in genetic research in the last 20 years or so (for an overview, see Geary and Veeramah in this issue). Cavalli-Sforza and his contemporaries still had to work exclusively with modern DNA, and with data-sets that in practice only allowed to distinguish collectively between modern nations. They thus worked (and had to work) with statistical averages of populations constituted by modern peoples or ethnic groups. It took some time to realize the methodological problems of this type of data analysis. Scientific progress helped to arrive at more complex models. The ability to use the whole genome and not just Y-Chromosome and mt-DNA allows going beyond a few haplotypes as defining features of certain populations. The increased availability of ancient DNA means that precarious inferences across many centuries or even millennia

ceased to be the only way to assess the genomes of people living in a distant past. Bayesian mathematics and advanced computer modelling (the field in which Krishna Veeramah excels) can lead to more complex interpretations of the genetic data – although a historian who is used to balancing many factors and variables in his interpretations of the past might wish that one day computer models will accommodate more than two or three variables.

Most of all, many geneticists have come to realize that their complex evidence would be wasted if it was just fed into very simple historical models, and that large migrant groups usually do not travel with a quasi-identical genome and cultural baggage. One conclusion that emerges from all of the contributions to the present volume therefore is that we need more interdisciplinarity – research groups that unite geneticists (and other scientists), archaeologists, where relevant, linguists, and, for the historical periods, historians. Patrick Geary and Krishna Veeramah present a model project on the Longobard migration to Italy in the sixth century CE in this issue, which involves a large interdisciplinary team. It deals with a case very well attested in written sources and in well-dated graves, which can yield extensive data for scientific analyses. If successful, this project may provide exceptional clues as to how a historical migration is reflected in all the different types of evidence, how to deal with this multiplicity, and to what extent a synthesis of all the results is possible.

Finally, the editors of ›Medieval Worlds‹ are grateful to Jörg Feuchter and Stefanie Samida who organized the Conference ›Genetic History: A Challenge to Historical and Archaeological Studies‹ in Berlin in October 2015. Some of the contributions of the present issue are based on papers presented at this conference, and the article by the two organisers offers important elements of a synthesis. This is a debate that should be continued, and might also be pursued further in future issues of this journal.