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a cura di Roberto Delle Donne

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This response reflects on the three contributions discussing my book on archaeogenetics and history. It addresses the use of genomic data as historical evidence, the relationship between genetic patterns, archaeological cultures, and ethnic labels, and the possibilities opened by archaeogenetics beyond questions of identity. Genomic evidence cannot replace written or material sources, but, when critically integrated with archaeology, isotopic analysis, and historical interpretation, it can illuminate migration, kinship, social organization, and disease at previously inaccessible scales.

Early Middle Ages, Europe, archaeogenetics, genomic data, ethnicity, migration, kinship, interdisciplinary research.

1. *Genomic Data as Historical Evidence*

An author always hopes that his readers will understand his argument and that they will take him seriously, whether or not they agree with all that he has written. I am thus immensely grateful to the three colleagues who have indeed understood the aims of my book on archaeogenetics and history, and who engage seriously with its content.

These three scholars address in particular three primary issues raised by my book: the extent to which genetic data can indeed become historical data while avoiding reducing the complexities of human identity to essentialist biology; the relationship between patterns identified by genomics, those identified by archaeology, and the ethnic labels found in written sources; and finally, beyond questions of identity, what other types of historical insight this relatively new type of evidence can provide.

All three respondents agree that when properly analyzed, genomic data will indeed transform our understanding of the past, but this must of course be qualified. Genomic data will never replace archaeological or historical data or research. Both Roberto Delle Donne and Walter Pohl point out that in spite of the provocative title, genetics will not "rewrite history" in the sense of replacing written and material sources or radically overthrowing the general

image of the transformation of the Roman world. Nor will archaeogenomics reduce history to biology. Rather, genomic data simply provide an additional body of evidence, a fourth "trace," which, far from replacing written, oral, and material evidence, must be properly understood, critically evaluated, and integrated into other, more traditional types of sources. This is a fundamental point, both because of exaggerated claims by some early adopters of genomic history and because of the resistance shown to this type of scholarship by members of the archaeological and especially historical professions. Genomic data are useful only when evaluated along with other types of evidence.

Failure to appreciate the limitations of genomic data for historical reconstruction risks reviving the toxic, essentializing tendencies of earlier attempts to integrate biological, genetic, and historical data, and practitioners must be aware of this dark history. Roberto Delle Donne is particularly explicit about this, stating that the greatest danger lies not in genomic data themselves, but in the questions that may be asked of them: *Le domande meno interessanti, o comunque più pericolose, sono quelle che ripropongono in forma genetica i vecchi interrogativi sull'origine dei popoli*. Indeed, the danger of such an approach is exactly what Marc Bloch warned against in his *Apologie pour l'histoire*. All too often, Bloch wrote, when searching for 'origins', quite apart from the difficulty of ever discovering the 'beginnings' of significant historical phenomena, is the ambiguity that by 'origins' one too often means that beginnings explain everything, in other words, origins are too easily understood as essences: *Dans le vocabulaire courant, les origines sont un commencement qui explique. Pis encore : qui suffit à expliquer. Là est l'ambiguïté, là est le danger*.[1]

Walter Pohl too emphasizes that genetic clusters must not be understood in the same ways that historians use terms such as 'identity', 'ancestry', and 'migration'. Michel Kazanski likewise points out that the equation 'archaeological culture = ethnic group' proposed by Gustaf Kossinna has been shown in numerous instances to be false and that one must not confuse an ethnic group with a genetic group. The reason for writing my chapters that introduce historians and archaeologists to the more technical aspects of population genetics and its applications was precisely to show both the possibilities and, perhaps even more importantly, the limitations of what one can hope to learn from genomic data.

2. *Genomes, Material Culture, and Ethnic Labels*

Nevertheless, one can see some difference in the positions of Roberto Delle Donne, Walter Pohl, and myself on the one hand and Michel Kazanski on the other: while both Roberto Delle Donne and Walter Pohl are extremely

[1] Bloch, *Apologie pour l'histoire*, 20.

cautious about using material evidence such as grave goods to identify the ethnic identity of individuals, Michel Kazanski sees that *l'identification ethnique des peuples dont l'archéologie étudie les vestiges matériels est l'une des tâches essentielles et passionnantes de cette discipline, une tâche qui stimule l'imagination et les émotions*. By way of example, he cites a significant publication by Pruvost et al., which analyzed 35 of 176 individuals buried in a late antique cemetery in Angers in use from the start of the second century until the beginning of the sixth.[2]

The cemetery includes eleven individuals buried with an anomalous orientation (north-south instead of east-west), seven of whom were buried with grave goods corresponding to those of the Chernyakhiv culture. The graves, dated by artifact typology, belong to the period from the second half of the fourth to the beginning of the fifth century. On a PCA plot, these individuals cluster roughly with present-day Bulgarian populations, in contrast to the majority of the cemetery population, who resemble present-day western Europeans. Based on the coincidence of the archaeological and genomic analyses, the authors characterize these individuals as *un petit groupe de goths*.[3]

It is unfortunate that the Pruvost study analyzed less than 20% of those buried in the cemetery and did not provide strontium data to suggest whether the seven individuals were indigenous to Angers in spite of their exotic cultural practice and ancestry. Nor did the paper present the underlying admixture analysis to suggest the full complexity of these individuals' biological histories. However, as Michel Kazanski points out, their presence may well represent the Empire's well-known practice of integrating barbarian auxiliaries into the Roman army. Clearly, those who buried these people wished to represent them in a way that distinguished them from the rest of the community, and the paper is a clear vindication of the possibility of combining genomic and archaeological data to recognize the heterogeneity within a burial community. In this, I share Michel Kazanski's enthusiasm.

However, should one label this group as 'Goths'? Would they have answered to the name 'Goth' or perhaps Tervingi, Greuthungi, or some other related but now lost identity? How would their neighbors and associates have described these people with their different dress and different customs? Would they have used a collective term such as 'Goth'? We cannot know. Nor do we know how the other even more numerous individuals (nine in all) buried at Angers whose genomic profile suggested that they, too, had non-local ancestry, might have identified themselves or been identified by others. Michel Kazanski himself cautiously concludes only that with regard to this group, *il s'agit sans aucun doute de la migration d'un groupe limité, venant d'Europe de l'est*, rather than repeating the ethnic label of 'Goth' employed by the authors. Here I think that all four of us are in broad agreement.

[2] Pruvost et al., "L'apport de la paléogénétique," 339-57.
[3] Pruvost et al., 353.

The ultimate impossibility of imposing a label that we find in written sources onto specific individuals is perhaps why Walter Pohl, while acknowledging the importance of ethnic labels in a collective sense, is hesitant to ascribe specific ethnic labels to individuals. Indeed, as he suggests in the case of some individuals from the mid-sixth century cemetery of Szólád, genomic evidence might suggest that they could have had multiple, simultaneous ethnic identities, a potential set of resources to activate in different circumstances.

The paradox is thus important: As Michel Kazanski rightly points out, written sources regularly mention the names of ancient peoples and their territories. Indeed, in the narratives of Greek and Latin writers, collectivities identified by ethnic labels are, along with their leaders, the primary actors in the drama of Late Antiquity. One cannot write the history of the period of fundamental transformations that occurred in western Eurasia without writing about Huns, Goths, Franks, Lombards, Avars, and others. However, at the same time, written sources, archaeological analyses, and now genomic analyses show the complexity and heterogeneity of these large collectives. As Walter Pohl reminds us, a 'Lombard' invasion of Italy certainly took place, and we find both a change in the material culture in Italian sites and the introduction of new genetic patterns in sites associated with this invasion and conquest. But at the same time, written sources such as Paul the Deacon's *Historia Langobardorum* record that within the 'Lombards' were also Gepids, Suebi, Pannonians, Bulgars, and others. At sites such as Collegno near Turin or Cividale, we find individuals and kin groups with widely divergent genetic backgrounds that nevertheless buried their dead with what archaeologists term 'Lombard' grave goods. Surely all of these individuals were in some sense 'Lombard', but they could simultaneously have identified themselves and been identified by their contemporaries with other ethnic labels.

Similarly, a paper published by our ERC-sponsored research group on the Huns (my book summarized briefly the results, but the paper provides the full data that Michel Kazanski finds missing) shows the genetic heterogeneity of fifth-century individuals buried with artifacts that archaeologists have termed 'Hunnic'.[4] While some of the 370 analyzed individuals showed a genetic connection with the region associated with the Xiongnu empire, we found a high genetic diversity among those who received eastern-type burials, suggesting the diversity of the Hunnic Empire in the West. This genomic evidence confirms the report of the Roman Priscus who visited the court of Attila only to find that the Huns were a mixture of various peoples.[5]

Thus, in the words of Walter Pohl:

> *I gruppi etnici attestati dalle fonti potevano sovrapporsi, in misura variabile, a cluster genetici e comunità culturali: il problema consiste precisamente nello stabilire fino a che punto ciò avvenisse, senza presupporlo né escluderlo a priori. I gruppi*

[4] Gnecchi-Ruscone et al., "Ancient Genomes," e2418485122.
[5] Priscus Panita, *Excerpta et fragmenta*, fr. 8, 15-50.

> *etnici non possono essere definiti né sulla base di un profilo genetico comune né soltanto attraverso caratteristiche culturali condivise. Essi si formano storicamente attraverso il senso di appartenenza dei loro membri, le forme dell'azione collettiva e il riconoscimento o la categorizzazione da parte di altri gruppi.*

If ethnic identity is not a fixed, essential aspect of individuals and groups but rather a shifting combination of self-identification, group identity, and categorization by outside observers; if internal integration, joint action, and cultural representation are dynamic processes, then perhaps, contrary to Michel Kazanski's statement that *l'identification ethnique des peuples dont l'archéologie étudie les vestiges matériels est l'une des tâches essentielles et passionnantes de cette discipline*, the real task of collaborative research is to recognize the complexities and contradictions as well as the congruencies inherent in human societies. That these complex social groups could at times act in such a collective manner as to be seen by contemporary writers as unified 'peoples' is perhaps evidence of the triumph of political leadership rather than of ethnic affinity.

3. *Beyond Ethnicity: New Questions for Historical Research*

Debates about ethnicity both in the present and the deep past are endless. Genetic analysis will no more decide 'who these people really were' than modern DNA tests will tell us 'who we really are'. As Roberto Delle Donne points out, the most innovative and significant contribution of archaeogenetics lies in entirely different areas. Rather than providing definitive answers to ancient questions, it allows scholars to reformulate questions about past societies that hitherto simply could not be asked. As he states:

> *Non più soltanto quali popoli migrarono, ma quali individui si mossero; quali gruppi familiari si formarono; quali donne e quali uomini attraversarono confini diversi; quali pratiche matrimoniali organizzarono le comunità; quali forme di distinzione sociale si fondarono, o non si fondarono, sull'ascendenza biologica; quali identità furono rivendicate, attribuite, dimenticate o trasformate.*

I quite agree that questions beyond ethnicity are among the most significant that genomic data can help us explore. Roberto Delle Donne presents one example, namely the complexity of Sicily's population, a complexity that reveals hitherto unrecorded but significant movements of population into the island from as far away as Sub-Saharan Africa and Northern Europe long before any migrations or invasions documented in the written record. Such movements of individuals or family groups were probably a constant throughout history: one finds similar genomic evidence in pre-Migration period Ger-

many, where individuals with southern European ancestry were buried in contexts indistinguishable from their more local neighbors.[6]

Genomic data, when combined with archaeological, isotopic, and historical evidence likewise enable a level of social analysis otherwise impossible. When comprehensive sequencing of all or virtually all individuals buried in a cemetery is possible, one can follow marriage strategies, male and female exogamy, kindred-specific diets, and a myriad of aspects of the lives of ordinary people in a village. Expanded to multi-site, comprehensive analyses, complex patterns emerge that illuminate how different regional centers varied from one another yet formed complex networks. Finally, detailed genomic analysis not only of human DNA but of the ancient DNA of pathogens is exposing evidence of disease and epidemics which may not only complete but even challenge the normative accounts as preserved by Mediterranean observers.

Such fine-grained analyses are not possible when genomic analysis consists of scattered sampling across multiple sites across great expanses of time and space. Sampling cannot capture the complexity of admixtures and ancestries that may exist even within a small village community, nor does it allow for the reconstruction of complex biological relationships within and between communities. However, these 'pedigrees' must be compared with archaeological evidence of location of burials, grave orientation, grave goods, etc., in order to determine the cultural importance that biological kinship might have had in the structure of a community. Thus genomic analysis finds meaning only within the context of archaeological, anthropological, and historical analyses.

Collaboration, mutual understanding, and an openness to new ways of working are at the heart of the developing field of historical archaeogenetics. I hope that the dialogue among scholars generated by my book and reflected in the thoughtful contributions of Pohl, Kazanski, and Delle Donne will continue and see the further integration of this new and powerful body of evidence into future historical studies.

[6] Gretzinger et al., "Ancient DNA Connects," 384-93.

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