

Programme

Thursday, 1. October 2015

9.15 Uhr: STEFANIE SAMIDA (Potsdam)
Genetic History: An Introduction

Genetics and History

9.45 Uhr: JOHANNES KRAUSE (Jena)
*Genome wide Data from Ancient Humans Suggests
Three Ancestral Populations for Present-Day West
Eurasians that Genetically Admixed During the
Neolithic*

VERONIKA LIPPARDT (Freiburg)
*Pitfalls of Interdisciplinarity. Why Geneticists Need to
Consider Four Different Sorts of History*

11.15 Uhr: Coffee break

Genetic History: Past and Future of a Disciplin

11.45 Uhr: JÖRG FEUCHTER (Berlin)
Genetic History: A Timeline

KRISHNA VEERAMAH (New York)
*Using 2nd Generation Sequencing Data to Model the
Demographic History of European Populations from
the Migration Period*

13.15 Uhr: Lunch break

Genetic History and Ethnic Identity

15.00 Uhr: YULIA EGOROVA (Durham)
New Directions in Genetic Research on Jewish History

SEBASTIAN BRATHER (Freiburg)
*Ethnic Identity and Genes? Remarks on a Non-
Relationship*

16.30 Uhr: Coffee break

Genetic History and Migration

17.00 Uhr: WALTER POHL (Wien)

A Historical Migration and its Methodological Implications: The Case of the Lombard Invasion of Italy

STEFAN BURMEISTER (Kalkriese)

Archaeological Research on Migration as a Multidisciplinary Challenge – The Example of Late Antique Germanic Migrations

19.00 Uhr: Conference Dinner (Restaurant Habel, Luisenstr. 19, 10117 Berlin)

Friday, 2. October 2015

Genetic History and Kinship

9.00 Uhr: KURT W. ALT (Basel)

(Prä)Historische Gemeinschaften als soziale Systeme

FRANK SIEGMUND (Düsseldorf)

Verwandtschaft aus der Perspektive eines Archäologen

10.30 Uhr: Coffee break

Case Study I: The Vikings

11.00 Uhr: MARK JOBLING (Leicester)

Fishing in the Gene Pool for Vikings

KERSTIN P. HOFMANN (Berlin)

Mit vikingr in die Identitätsfalle. Wenn historiographische Akteure ein Eigenleben bekommen

12.30 Uhr: Lunch break

Case Study II: The Bantu

14.00 Uhr: BRIGITTE PAKENDORF (Lyon)

Molecular Anthropological Perspectives on the Bantu Expansion

MANFRED K. H. EGGERT (Tübingen)

Genetizing Bantu: Historical Insights or Historical Trilemma?

15.30 Uhr: Final Discussion

Abstracts (alphabetical order)

KURT W. ALT (Basel)

(Prä)historische Gemeinschaften als soziale Systeme [(Pre)historic communities as social systems]

One of the tasks of archaeological research is to reconstruct past living conditions and circumstances from the cultural remains left behind by prehistoric populations. However, past living situations can only be adequately explained if it is possible to make statements on the social structures and the social organisation of (pre- and protohistorical) former communities. In order to reconstruct the social structures and dynamics of human populations, archaeologists collaborate with biological anthropologists in an integrative manner. On the basis of biohistorical records the latter have developed numerous methodological approaches (morphological/genetic) in recent decades that allow us to answer questions concerning the social conditions of the past. Thanks to the continuous advancement of DNA sequencing, aDNA research has now also arrived in the genomics era.

The cohabitation of two individuals (mother and child, man and woman etc.) is the smallest and most primal form of a social group and is considered to be the basic element of society. There is no binding consensus on the characteristic features of traditional communities labelled as local groups or face-to-face communities by cultural anthropologists; however, in their 'purest' form they are conceived as small, geographically and socially well-defined, relatively homogenous, economically independent and acting in solidarity. Whilst the significance and importance of individual parameters are open to debate, it is obvious that people and communities go through changes in their personal and social identities and experience 'cultural/social disorganisation' when groups grow much bigger, become mixed, isolated and more complex (cf. Neolithic demographic transition). If a community's original homogeneity is lost due to social change and/or an increase in genetic diversity (e.g. immigration), individuals or sub-groups are faced with wide-ranging cultural opportunities, but also with

conflict due to differences in attitudes to life. Other phenomena that have an impact on communities/societies are secularisation, the formation of hierarchies and ethnic/cultural identities and pronounced individualism.

SEBASTIAN BRATHER (Freiburg)

Ethnic Identity and Genes? Remarks on a Non-Relationship

Identity has become a keyword in social research. It means the self-consciousness of groups. Ethnic identity therefore characterises the perceptions of a people and its particularity varying from every other nation. Nevertheless, this is a social and cultural construction depending on the specific situation. Under certain conditions a functioning balance has to be achieved between the individual and social characteristics of every group member on one hand and the commonalities of the group on the other. Ethnic identity has to be fluid and appropriate according to the necessities. Genes are a matter of biology. Ancient DNA is often preserved in small fragments which allow just approximations to individual relationship. Modern DNA reflects the actual distribution and only very limited historical information at the population level. But population history and social history are two different things with only loose connections. Expecting any accordance between them would be a fall-back into 19th century conceptions of the ideal nation state: homogeneous in space, race, culture, language and people. This could only be a rare historical exception.

STEFAN BURMEISTER (Kalkriese)

Archaeological Research on Migration as a Multidisciplinary Challenge – The Example of Late Antique Germanic Migrations

Migration is a key concept in German archaeology. It is a common explanation for the distribution and diffusion of cultural traits. Often it is however more an axiomatic postulate as the result of methodological sound analysis. The weaknesses of this approach

have become apparent and have brought migration as explanation into disrepute.

For archaeological investigation of the migration period this problem is aggravated. The ancient written sources report an abundance of migrations, which are associated with particular people. These sources often provide the coordinate system of archaeological investigations with fatal consequences as archaeology runs the risk of losing its independent methodological basis. Recently new methods derived from the life sciences joined in and have created new approaches to migration analysis. These methods provide sometimes a corrective that can compensate for the weaknesses of archaeology's own methodology.

Archaeology now faces new challenges. Archaeological sources are often neither compatible with written sources, nor to the findings of the diverse life science methods. It is becoming apparent that archaeology has lost its previous methodological handle for investigating migrations. As scientific discipline archaeology has to find its place in migration research anew. The migration period as specific case study is a good starting point.

MANFRED K. H. EGGERT (Tübingen)

Genetizing Bantu: Historical Insight or Historical Trilemma?

This paper is devoted to the much debated problem of the expansion of Bantu languages over most of the southern half of Africa. Apart from being a major linguistic phenomenon it is as well a culture-historical and, more specifically, an archaeological topic.

The reasoning focusses on three aspects: first, Bantu languages, second, rainforest archaeology and third, Bantu genetics. While the Bantu language dispersal and archaeology are in some sort historically linked, Bantu genetics is a kind of 'newcomer' to the field.

As the title indicates, the impact of molecular anthropology on an answer to the Bantu expansion—here epitomized by the term 'genetizing Bantu'—can claim some importance in this

presentation. It has to be stressed, however, that human genetics is by no means the principal topic here. Rather, the emphasis lies on the interplay between Bantu languages, archaeology and Bantu genetics. Consequently, it is all three of them which are at stake. As the subtitle puts it: we may well ask whether this trinity leads jointly to historical insight or hides a historical trilemma.

The paper tries to enumerate some basic points of each field. Likewise, it aims to assess each field's strengths and weaknesses in order to arrive at an answer to the subtitle's question.

YULIA EGOROVA (Durham)

New Directions in Genetic Research on Jewish History

Past two decades witnessed the intensification of genetic research which attempted to engage with different aspects of Jewish history—DNA analysis was thus employed to cast light on the formation history of different Jewish communities around the world, from 'mainstream' to those who declared their affiliation to the Jewish people only in the past century. The aim of this paper is to consider the naturalizing tendencies of what became to be known as 'Jewish genetics' in a new analytical light by putting academic scholarship that has explored the sociocultural significance of DNA research conducted among Jewish communities, in dialogue with postcolonial theory and recent STS research on the concept of genomic sovereignty.

JÖRG FEUCHTER (Berlin)

Genetic History: A Timeline

During the last two to three decades, a new kind of history has emerged. 'Genetic History' is the study of historical questions with the methods and materials of population genetics. Using human genetic diversity as a historical record and developing methods of interpreting it, geneticists have established themselves as producers of knowledge about the human past. In my presentation I will try to describe this birth of a discipline over the last decades as well as its

deeper roots. Due to the lack of relevant studies (except for Marianne Sommer's very useful work) this can only be done in the way of a first attempt.

Genetics as a biological discipline developed only after 1900 but its connections with history has deep roots. At the core of evolution theory was the idea of introducing history into nature and the natural sciences, and long before the term 'Genetics' was coined by William Bateson in 1906, the expression "Genetic History" was used by 19th century historians to describe a specific way of writing history.

Already in the first half of the 20th century serologists were looking for 'history in the blood' (Fraser Roberts), but after its invention and description in the 1940s and 1950s DNA substituted blood as material. In the 1960s, Emile Zuckerkandl and Linus Pauling privileged the gene as an access to the history of evolution. Their approach of 'molecular anthropology' was taken up by Luigi Luca Cavalli-Sforza and others who have furthered the notion of genetic diversity as a 'window' to the human past in general. Thus Genetics has contributed decisively to the establishing of the 'cradle of mankind' in Africa, the tracing of routes of migrations of humans out of Africa and to research in the Neolithic transition to agriculture. Yet geneticists have not constricted themselves to prehistory. Since the late 1980s/early 1990s they have turned to time periods conceived in conventional definitions as belonging to history proper. With the turn of the new millennium, genetic research has begun to be noticed by historians. Today we are witnessing first collaborative efforts of geneticists and historians. At the same time, the general public has developed great interest in tracing their individual ancestry ('Personalized Genetic History') as well as in DNA as historical source material and in genetic explanations of the recent past.

KERSTIN P. HOFMANN (Berlin)

Mit *vikingr* in die Identitätsfalle. Wenn historiographische Akteure ein Eigenleben bekommen

[With *vikingr* into the Identity Trap: Or when Historiographical Actors Get a Life of Their Own]

Is it possible to fish in the gene pool for Vikings? Does Viking DNA exist? Can genes really tell you whether you are a Viking or not? My answer to all of these questions is 'no', but not because I am rejecting the results of genetic analysis. For a constructive collaboration between archaeology, history and genetics we need other questions and this is not only a matter of terminology. To avoid wrong expectations, but also fears, it is necessary to make it clear that DNA can be an identity resource to modern people. This is illustrated for example by the willingness of people to pay for having their DNA analyzed. For past identity constitution DNA was irrelevant. Therefore, in historical research it can only be used as a proxy for the origin of people. Nevertheless, the emerging discipline of genetic history poses a challenge for our current modern western academic conceptions of identities, human communities and persons, as well as to our historiographical narrations. This has been particularly well shown by the project "Viking DNA in Northern England".

My paper starts with some short remarks on the etymology of Viking and the reception of Vikings in modern times. I focus on practices of naming as well as on semantic simplifications, romanticization and mythologization as constituents of the popular image of 'the Vikings'. I also examine the concepts of identity and mobility on which archaeological and genetic interpretations are based. Afterwards, current issues of identity research and the problem of essentializing archaeological subjects are discussed. My focus will be on the re-naturalisation of historiographical actors. Finally, the dangers of identity politics will be addressed, which occur both outside of the academic discourse and within academia itself. Our duty is now to avoid mere battles for sovereignty of interpretation, as we experienced in the course of the introduction of radiocarbon dating. Instead, scientific and political reflexiveness

as well as mutual acceptance is required to establish good ways of dealing and/or collaborating with each other.

MARK JOBLING (Leicester)

Fishing in the Gene Pool for Vikings

There is abundant evidence from textual sources, archaeological finds and place-names to show that Vikings came to the British Isles and settled there during the 8th–11th centuries. Less clear is the number of migrants, and the nature of the populations who settled in different parts of the Isles—were they large groups containing whole families, or small numbers of males who had a disproportionate influence on the local culture? Here, in principle, genetics can help. Most work so far on Viking migrations has studied the DNA of current populations, using statistical methods to infer the past, rather than analysing DNA from skeletons of the appropriate period. In this talk I point out some of the problems in using modern DNA data: the genetic ‘palimpsest’ of multiple layered past events; the issue of focusing on uniparentally-inherited parts of the genome (mitochondrial DNA and the Y chromosome), which each reflect just one ancestor out of many; and the difficulty of distinguishing between Viking and other sources (e.g. Anglo-Saxons, Jutes) for past migrations. I will review previous genetic studies, and discuss our current work which uses coalescent simulations together with mitochondrial DNA and Y-chromosome analysis to address the question of sex-biased migration.

JOHANNES KRAUSE (Jena)

Genome wide Data from Ancient Humans Suggests Three Ancestral Populations for Present-Day West Eurasians that Genetically Admixed During the Neolithic

Ancient DNA can reveal pre-historical events that are difficult to discern through the study of present-day individuals alone. To investigate European population history around the time of the agricultural transition and the following Neolithic time period, our

research team sequenced complete genomes from a ~7000 year old early farmer as well as a ~8,000 year old hunter-gatherer from Central Europe. We furthermore analyzed genome wide data from 92 ancient humans that lived between 8,000 and 3,000 years ago in Eurasia. We compared the ancient humans to genome wide data from present-day individuals from 185 diverse populations to show that at least three ancestral groups contributed genetic material to present-day Europeans. The first are Ancient North Eurasians (ANE), who are more closely related to Upper Paleolithic Siberians than to any present-day population. The second are West European Hunter-Gatherers (WHG), who contributed to all Europeans but not to Near Easterners. The third are Early European Farmers (EEF), who were mainly of Near Eastern origin but also harbored WHG-related ancestry. We find that WHG and EEF genetically admix during the first half of the Neolithic in Europe, the ANE component however only arrives in Europe with the corded ware culture (CWC) during the late Neolithic. We find the corded ware culture genetically closely related to the Yamnaya population of the pontic steppe. Late CWC individuals in Central Europe trace 75% of their ancestry to the Yamnaya, documenting a massive migration into the heartland of Europe from its eastern periphery. This steppe ancestry persisted in all sampled central Europeans until at least ~3,000 years ago, and is ubiquitous in present-day Europeans. These results give support for a steppe origin of at least some of the Indo-European languages found in Europe today.

VERONIKA LIPPHARDT (Freiburg)

Pitfalls of Interdisciplinarity. Why Geneticists Need to Consider Four Different Sorts of History

Although population geneticists have become sensitive to historical issues, they are probably not aware of the more complex historical entanglements of their work. This contribution aims to highlight the ways in which historical issues have not been considered sufficiently in population genetics. Vice versa, it claims that scholars from the humanities and the social sciences need to take

on responsibility in and for interdisciplinary cooperation. The paper concentrates on population labels, as well as on practices of interdisciplinary cooperation, as two problematic aspects of the interface between genetics and history. It makes a strong point for listening to controversies in the field of interdisciplinary cooperation partners.

BRIGITTE PAKENDORF (Lyon)

Molecular Anthropological Perspectives on the Bantu Expansion

The expansion of Bantu-speaking peoples over large parts of Sub-Saharan Africa is still debated—not only with respect to the route(s) taken, but also whether there actually was a demographic migration of peoples, rather than just a cultural expansion involving the spread of languages and technologies through contact. Two major hypotheses exist with respect to the route of migration: the ‘early split’ model and the ‘late split’ model. The ‘early split’ model postulates that the western and eastern stream of Bantu peoples diverged early on during the expansion, to the north of the rain forest, whereas the ‘late split’ model suggests that there was an initial migration through the rain forest, with the dispersal of western and eastern populations happening only later.

As I will discuss in this talk, the genetic data support an actual movement of peoples during the expansion of the Bantu languages over Africa, rather than a spread through cultural diffusion and language shift. Furthermore, while the genetic coverage of African populations is still somewhat patchy, there is tentative evidence in favour of the ‘late split’ model over the ‘early split’ model, although the signal of these early dispersals was attenuated by subsequent contact. Lastly, the molecular data indicate that sex-biased intermarriage with autochthonous populations played a considerable role in shaping the genetic diversity of Bantu-speaking peoples.

WALTER POHL (Wien)

A Historical Migration and Its Methodological Implications: The Case of the Lombard Invasion of Italy

Most genetic studies about migrations of the past have dealt with prehistoric periods from which no written evidence and only a limited archaeological record survive. So far, there has been too little methodological debate about ways in which historical conclusions could be reached on the basis of genetic data and their statistical analysis. Often, clusters of genetically related samples were unproblematically identified with historical populations (as defined by modern criteria, such as common language or culture), and these in turn with peoples of the past (as constituted by their own 'ethnic' identification, and by that of their contemporaries). On the other hand, research by historians, archaeologists and philologists about better-documented historical periods has amply demonstrated that ethnic groups rarely coincided with biological descent groups, clear-cut linguistic units or cultural groupings. For instance, the so-called 'migration period' in the 4th to 6th centuries CE offers complex evidence about the results of migrations, and the heterogeneity of migrating groups.

This paper will use the case of the migration of Lombards and associated groups to Italy in 568 CE, which offers varied evidence. We have texts which allow dating it exactly, and locating it quite well. The Lombard burial practice of inhumation with sometimes rather lavish grave goods allows identifying individuals whose elite status in the Lombard kingdom was displayed at their funeral. Scientific archaeology studies conducted on their skeletal remains increase, and genetic testing of ancient DNA is under way. These studies are now promoted by an interdisciplinary project group headed by Patrick Geary (IAS Princeton). The goal of the group is to find ways to relate the results of the different disciplines with each other without pre-conceived assumptions: for instance, that individuals buried with grave-goods were Lombards, and should differ genetically from those who were buried without grave-goods. In this way, we may be able to 'calibrate' genetic evidence about migrations by using sets of independent sources, and hope to

arrive at a more differentiated methodology to draw historical conclusions from genetic data.

STEFANIE SAMIDA (Potsdam)

Genetic History: An Introduction

In recent years, molecular genetics has opened up an entirely new approach to recent human history. DNA evidence is now being used not only in studies of early human evolution (molecular anthropology), but is increasingly helping to solve the puzzles of history. This emergent research field, which is coming into its own on a par with the study of the traditional sources of archaeology (material evidence) and history (written sources), has become known as 'genetic history'. The rapidly decreasing costs of DNA sequencing favour the rapid growth of this form of historical research, for which other names – like 'palaeogenetics' and 'archaeogenetics' – are also in currency.

The paper gives a short overview on this new field of research and delivers insights into our concept of this conference. The aim is both to discuss in what ways the ascendant discipline of genetic history is relevant and to pinpoint the potential and pitfalls of this field of research. At the same time, we would like to use this conference to raise the profile of the field within the culture studies (*Kulturwissenschaften*). We hope that the opportunity for communication between representatives of different disciplines will contribute to loosening up the widespread unidisciplinary method of working and, in particular, bring together the relevant scientific and cultural streams of research.

FRANK SIEGMUND (Düsseldorf)

Verwandtschaft aus der Perspektive eines Archäologen

[Kinship from an Archaeologist's Point of View]

Archaeology uses a variety of terms for kinship and for social groups which are also used in interdisciplinary projects, including those with palaeogenetics, as a reference point for comparisons. This contribution investigates the conceptual difference between

the various group designations and presents the differences in their genetic relevance. The diverging models of the term culture within archaeology are presented according to Clarke (1968) and distinguished from the term technocomplex, on the one hand, and especially from the term ethnic group on the other. The ethnicity model introduced by Barth (1969), which distinguishes between cultural and ethnic groups, is especially significant here. The overview attempts to outline the consensus and the dissent within the discipline in relation to these terms. In archaeology these terms for groups and kinship are always understood to be social systems which do not necessarily have a biological significance as well.

KRISHNA VEERAMAH (New York)

Using 2nd Generation Sequencing Data to Model the Demographic History of European Populations from the Migration Period

Between the 5th and 7th centuries western Europe experienced the disappearance of the Roman Empire and along with it a fundamental transformation of socioeconomic systems and culture. Migrating Germanic groups, or barbarians, are thought to have played an important role in this transformation and scholars have long debated their origins and social structures. Unfortunately attempts to examine such factors using only material culture and historical sources have proved problematic. DNA from burials potentially offers new information and 2nd generation sequencing is revolutionizing the ability to interrogate DNA from ancient samples. However, as of yet its application has been limited to questions regarding *hominin* prehistory. We have established a large interdisciplinary group consisting of historians, archaeologists and geneticists to examine whether paleogenomic data can help shed further light on the putative Lombard (also known as the Longobards) migration. According to written sources, the Lombards were Germanic barbarians first identified as living along the shores of the Baltic Sea in the first century CE. They are thought to have later settled in Pannonia (what is now Western Hungary,

the Czech Republic, and Eastern Austria) prior to their entry into Italy in 568, where they established a kingdom lasting until 774. We are aiming to genotype various putative Lombard cemeteries using an ancient DNA capture protocol that will target ~400K SNPs. We will present preliminary paleogenomic data based on this protocol from two putative Lombard sites, Szólád in Hungary and Collegno in Italy.