‘Do You Want to Know Who You Are?’ The Rise of Genetic Ancestry Testing and the Search for Genealogies: A Case Study from Sweden

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A Case Study from Sweden

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Abstract

As the practice and business of personal DNA ancestry testing continue to expand globally, understanding people's interest in their genetic history, and how the results influence attitudes about the past, is being called for. Such insight is especially relevant to archaeologists and heritage researchers. Yet the motivations for taking direct-to-consumer DNA tests and their effects remain poorly understood in a European context. This paper presents the results of a nationwide survey carried out by The Centre for Critical Heritage Studies, University of Gothenburg, in collaboration with the Swedish Society for Genetic Genealogy. The aim was to identify social and cultural attitudes among people who decided to take a personal DNA test in Sweden. Nearly 900 individuals answered the survey. Based on the results, we identify a distinction between family genealogies and personal genetic history versus national history and collective identity. While the majority of respondents are interested in history and archaeology, their interest in family genealogies is specifically linked to individual stories and possible links to existing/unknown family members. This suggests that DNA-testing provides a new and different take on family histories compared to historically-documented genealogies. It also suggests that the link to polarizing debates on ethnonational belonging, highlighted in relation to public responses to ancient DNA studies in archaeology, remains muted as regards personal DNA tests.

Keywords: Direct-to-consumer DNA testing, genealogy, archaeology and genetic ancestry, heritage and identity formation

Introduction

People are commonly interested not just in the past *per se* but also in their own history. This is well known to archaeologists, and over recent decades community archaeology, public archaeology, and other forms of archaeological outreach activities have developed in response to this (Kajda et al. 2017). Moreover, within these initiatives, it is widely recognized that 'the public' is positive about acting as co-producers of their past, rather than passively receiving accounts. In this light, the rapid spread of genetic ancestry testing that can be bought freely and conducted at home is interesting. In such activities, rather than being a passive receiver of expert knowledge, the user becomes much more directly involved and the account produced is a personal one. At the same time, the accounts being produced are based on scientific methods, so they are granted a certain authority.

For people working within archaeology, museums, and heritage management more widely it should, therefore, be important to learn more about what influences people's interest in their own history and whether and how this newly acquired genetic history is connected to their other notions of identity and attitudes about the past. Such insights are useful when these professions plan how to share their accounts of the past and when they design strategies for meaningful involvement of the wider public. With the number of aDNA results now exceeding 5000 alone for Europe (Mallick

et al. 2024), it may become possible to search not only for immediate family relations abut also for genealogical links further back in time, even if this is much less personal.

Genetic ancestry testing schemes that people can now access with ease have become a global phenomenon. In 2022, more than 30 million people had taken a direct-to-consumer (DTC) genetic ancestry test (Guerrini et al. 2022). Yet, research on what motivates people to use such tests and whether the results have any cognitive and social impacts is still underdeveloped (Hazel et al. 2021; Parthasarathy 2010; Roberts & Ostergren 2013). National socio-political contexts have some influence on the motivations for learning about one's personal DNA history. The relatively widespread popularity of DNA testing in the US, for instance, is thought to relate closely to ongoing critical debates about race and migrant history (Abel 2022; Carlson 2020; Nelson 2016). These differences have been characterized as 'high' and 'low stake' (Scully et al. 2016), with the former referring to situations where genetic testing can be used to (notionally) place oneself or a group within complex histories, such as slavery and colonialism, and where genetic claims and connections may have financial and legal implications (Abel 2022; TallBear 2013).

This paper, based on a survey in Sweden, is concerned with users who would be expected to fall within the 'low stake' category. For this kind of context, the data and the motivations they reveal may relate to ongoing debates about the role of the individual, family and kin (in this case in northern Europe) and illuminate whether and how a sense of history and time matters to people. In the northern European context, the results may also relate to wider contemporary sociological debates with their distinct concern about the composition of the population and interest in the changing positions of the individual. As regards the latter, it has, for example, been argued that people have become ever more self-centred with their lives detached from 'soil' and family relations (e.g. Fukuyama 2018). This, in turn, raises questions about how earlier notions of lateral relations that anchored people are now disappearing and what the consequences of this may be, including how this may or may not impact people's interest in pastness including their own family history as part of a long-term general history.

In turn, the desire for such connections may have implications for contemporary constructions of identity at individual, community, and societal levels, as well as for shared notions of history and the distant past. It is these desires and curiosities that commercial DNA testing providers address when they promise to place the individual within wider genealogies relations. This means that the survey respondents' accounts of their motivations for using the test provide helpful insight into how individuals reflect on and formulate views when faced with the possibility of learning more about 'who you

are'. In this regard it is important to stress that the promises made by the providers mean that the tests are done with a predetermined sense of what the results are about (Abel 2022; Abel & Frieman 2023).

It is on this background that people's use of these new technologies becomes interesting and revealing, including potentially showing cognitive or ontological shifts. We propose that behind the use of such technologies sits an interest in time, and more specifically a desire to project the Self back in time by operating (new) notions of kin and kinship and even ancestors. What is less clear, however, is how 'time' is conceptualized within such projections and especially whether such notions are individualized or whether certain times, such as the Viking period, are commonly desired as points of connection. The survey aimed to improve our comprehension of such aspects of the users' motivations.

Reacting to these developments, we have seen the quick growth of new research fields focused on issues of identity, kinship, and genealogy, variously combined and using different disciplinary backgrounds ranging from biomedical to heritage (Abel 2022; Brück & Frieman 2021; Carlson 2020; Hazel et al. 2021; Källén 2025; Marcon et al. 2021; Nelson 2016; Roth et al. 2020; Scully et al. 2016; TallBear 2013). This paper seeks to contribute towards this by foregrounding a consumer perspective and pursuing insights that are important for archaeology and heritage. The following analysis is therefore grounded in the survey data and interpretative reflections are directed by the respondent. This approach was selected to achieve nuance in terms of how people think, and to make it possible for future studies to recognize differences across groups or countries. This means, however, that certain kinds of reflections are absent. For instance, notions of blood and kinship are not analysed or discussed because this terminology and associations were not introduced or used by the respondents.

Starting from a large survey conducted in collaboration with the Swedish Society for Genetic Genealogy (SSGG.se) in 2018, we seek to learn more about peoples' motivations for taking a DNA test and the potential impacts of the results they receive. While we have seen discussions of the implications of the geographies of commercial DNA testing (Nash 2015), this paper is probably the first to represent a national survey based on more than 800 anonymized answers.

From traditional to genetic genealogy: the rise of DTC genetic ancestry testing

Sweden has had a long interest in genealogical research. The past 100 years of the Swedish genealogy movement can be roughly divided into three

phases. During the first 60 years, it was an interest exercised by the well-to-do, and it demanded both time and financial means (Skogsjö 1983). The research required many and long visits to archives spread across the country. The interest was largely aimed at producing as "good" a family genealogy as possible and it was not uncommon for genealogists to improve their pedigrees. There were often several preconceived notions built into the results, and in some cases these notions were even based on the fact that it was difficult to follow up and check them.

After the first phase, change in practices happened as a result of materials becoming more widely available through the use of microfilm or microfiche. These could be distributed to significantly more places than the previously limited archival access, and much more research could take place in or near the place of residence. Interest increased and a larger number of genealogical associations were founded. Many people organized themselves into associations although genealogy continued to be considered an activity for a select group. During the third phase, which began around the turn of the millennium, various new developments took place. The use of internet-based services made private genealogical research increasingly common. The former nerd stamp disappeared, and genealogy came to be considered a proper science, even if it did not fit into academic circles (Malm 2016). This development is clearly reflected by the membership of The Federation of Swedish Genealogical Societies, with a slow increase during the 1990s, a noticeable increase around the turn of the millennium, and the number of active genealogists in affiliated associations doubling 10 years later. During this last phase, we also saw a large increase in subscribers who paid for genealogy services on the internet.

After the peak in 2010–2013, the number of active members in The Federation of Swedish Genealogical Societies decreased, and at present it has declined by 20 per cent in comparison to its peak. This is probably largely due to the increased use of social media, including, for example, genealogy groups on Facebook. There is now substantial activity in these groups and the number of members most likely exceeds those who are members of traditional genealogical associations. It seems that an increasing number of people conduct genealogical research by themselves or in loosely composed constellations. Thus, whereas genealogy continues to be of great interest, it is taking place in different forms and platforms than earlier. The use of social media also allows new angles on genealogy to be explored, such as historical events.

DNA ancestry testing as an aid to genealogical research has been around for over two decades. Initially, the tests were limited to a small set of markers on the male Y-chromosome and the hypervariable segment of the mitochondrial genome, called HVR1. Over the years, more markers and larger

parts of the mitochondrial genome were added until, in 2009, *23andMe* launched their first autosomal test. The 'Relative Finder' targeted around 600,000 markers or SNPs (single nucleotide polymorphisms) spread across the entire genome and provided test-takers with ancestry, as well as health-specific information relating to disease risk. Other companies, like *FamilyTreeDNA* and *Ancestry*, soon followed suit with their own autosomal tests. With these launches, interest in DTC genetic ancestry testing spread quickly around the globe, first in the US, but not long after also in the UK and Scandinavia (Kennett 2011). Part of the global appeal of DTC genetic ancestry tests, it seems, is their ability to reunite consumers with long-lost relatives (Guerrini et al. 2022), as well as the promise to reconnect them to real or imagined past family members.

Broadly speaking, the method used by DNA ancestry companies takes advantage of the fact that genetic variation in human populations tends to be geographically structured (Nash 2015; Novembre et al. 2008). However, it also stands true that most genetic variation occurs within continents and smaller regions rather than between continents or traditional racial groups (Benn Torres 2020; Graves & Goodman 2021; Lewontin 1972). This might seem paradoxical, but it is not and it all boils down to the fact that genetic ancestry and 'race' are not the same (Jobling et al. 2016). There is now broad agreement that traditional racial categories are a product of historically contingent social, economic, and political processes (Lewis et al. 2022). As institutions are re-examining their use of race as a biological or social variable, genetic ancestry is starting to replace racial categories in medical and other contexts. This also applies to the business of DTC genetic ancestry testing as many companies employ continental genetic ancestry categories as a way of describing human genetic variation. However, this practice has many critics who argue that it fails to adequately capture the extent of human genetic diversity (and demographic history) and risks perpetuating essentialized notions of human diversity as purely biological, fixed, and deterministic (Marcon et al. 2021; Nordgren & Juengst 2009; Roth et al. 2020).

Despite the criticisms of using DNA testing as a 'straightforward route of providing individuals with personally tailored information about their likely ancestry' (Scully et al. 2016), DTC genetic ancestry testing has continued to gain in popularity. In Sweden, popularity increased shortly after the launch of the first autosomal test in 2010, with strong support from traditional genealogy associations. Today, over 200,000 people have been tested in Sweden, and the Swedish Genealogical Association have even published a handbook on DNA (Sjölund 2016).

Advertising tends to be clear about who it aims at and what is being promised. For instance, AncestryDNA advertises its project as a means to 'Connect to the people and places in *your past*' further stating that

'AncestryDNA can help deliver the richest family stories – and solve the toughest family mysteries'. Similarly, *Genetics Digest* entices the user by saying that '[…] digging into your family history and ancestry enables you to find out more about who you are personally'. The recognition of peoples' curiosity and interest in themselves does not stop there, and we have seen further commercialization and exploitation of this. In 2018, for example, the music-streaming service Spotify launched a collaboration with AncestryDNA to create customized playlists. Under the heading 'If you could listen to your DNA, what would it sound like?', Spotify promises a 'unique mix of music, inspired by your origins'. It is important to stress, therefore, that these companies are selling a personal history that is largely rooted in biological variation, but with strong cultural and emotional connotations. Therefore, beyond scientific discussions of what exactly a DNA sample reveals about an individual, these commercial DNA testing kits should be recognized as a widespread tool through which people receive and create accounts of their genetic identity and relationships. In turn, novel ways of formulating identity, kinship, and lineage may be emerging with a range of potential impacts from new forms of temporal and spatially distributed identifications to fortress mentalities.

Locating the search for personal genealogy within notions of heritage

Beyond such personal interests and the solving of specific cases, what are the wider reasons for and repercussions of using DNA testing to learn about one's identity? In particular, is there a concern with time and identity that connects this interest to a contemporary formation of heritage? It is generally thought that time is an important aspect of personal identity formation, as it provides a means of orientating the Self through a notion of continuity. Time helps to contextualize self-reflection in the form of the classic 'Who am I' and 'Where do I come from' questions (Breakwell 2015). Various notions of ancestors and genealogies provide the core instrumentalization of this, as they place the individual within a structured order that reaches back in time (including past people) and create connections. At its most basic this is about ontological security. We propose that these tests are primarily attractive because they are concerned with such placement of the Self. Moreover, this seems to be very different to how people may respond to aDNA testing as that does not promise a means of personally gaining a connection to past time.

The needs underwriting these attempts to secure order are substantial and widespread, and they are, arguably, among the formative forces behind

the phenomenon of 'heritage' (Macdonald 2013), and the general value given to archaeological enterprises – as the searching for and study of 'our' past. The formal structure of this 'order' does, however, vary considerably and is part of the formation of particular ontologies, which in turn results in diverse cultured constructions of kinship and lineage, including the social organization that historically characterized northwestern Europe.

The difference between, on the one hand, genealogy as a biological matter of descent and, on the other hand, familial relations as a socio-political system used to not be so easily separated; but this is what has become possible. This makes clear the difference between the universalism of how biological connections are made and the specificity of how social relations are regulated. The new DNA-derived data about identity and relatedness does not address this distinction, and users are invited to trace themselves and find genetically related individuals within the global community without any explicit attention to the range of social regulations and behaviours that caused them. This issue is also affecting how aDNA data is being interpreted within archaeology, and concerns have begun to emerge about how we adjust our interpretations to incorporate this (e.g. Brück & Frieman 2021).

To provide a historical context for our results we wish to stress that Sweden and Scandinavia historically have been part of a northwest European social tradition which has been extensively studied. Until the 1960s historians usually divided the family structures of the region into those of pre-industrialism versus those of industrialism and post-industrialism. The former was associated with large harmonious families while it was argued that these units had later been destroyed due to the effects of industrialism including urbanisation. In the 1960s Peter Laslett challenged this model (Laslett 1969, 2021). Instead, he argued that nuclear family structures had predominated in Western Europe from at least the Middle Ages until the twentieth century. Supporting Laslett's research, John Hajnal distinguished a pre-industrial northwest European simple family pattern characterized by late marriage for both sexes, neolocality, and the circulation of young people between households, before marriage, as 'life-cycle servants' (Hajnal 1965). Later Laslett complemented Hajnal's research with further characterization of a long-term family structure for northwestern Europe (Laslett 1983). What has become known as the 'Hajnal line' separated east European extended family structures from west European nuclear families, and both from Mediterranean complex family structures (Hajnal 1965). The argument for northwest European exceptionalism was also made by Alan MacFarlane in a well-known study of English 'individualism' going back to the thirteenth century if not much earlier (Macfarlane 1978).

Criticisms of the absolute nature of these differences have been made, and a greater variety of family forms (stem and extended) are recognized in

a wider European and diaspora setting (cf. Goody 1996; Sovič 2008). Yet the pattern of a northwest European nuclear family structure and neolocal marriage establishing lateral networks with migration to North America is still the dominant interpretation (cf. Hartman 2004; Thornton 2013). Some authors emphasize the importance of late marriage and a high proportion of unmarried in the northwestern family model (e.g. Hajnal 1965). Norwegians, Swedes, Scots and Canadians, for example, did marry unusually late in the nineteenth century (Ruggles 2009). Recent neo revisionist accounts of Laslett, Wrigley and Hajnal, while not disputing evidence of long-term continuity, are keen to emphasize the role of kinship in stories of migration and mobility from the seventeenth century onwards (Tadmor 2010). Kin often migrated in the footsteps of kin, a form recognized as chain migration, emphasizing the importance in migration strategies of kinship created through marriage ties rather than tracing ancestral descent from early modern times. This of course does not mean that objective patterns of nuclear family structures and neolocal residence would not be accompanied also by imagined long-term romantic ideas of ancestry (Scully 2018). Nor, as the results of this survey show, does it deny the flexibility with which changing perceptions of family kinship networks are incorporated into identity narratives. However, as the means of orienting the Self within such descent narratives is changing, we must consider what effects this may have on these same narratives. As Scully et al. state '[…] the very meaning and negotiation of matters like class, family, ancestry and belonging is now happening within contemporary societies through a direct engagement of citizens with practices such as personalized medicine, neurological enhancement and genetic ancestry testing' (2016:1). In their study of YouTube discussions of DNA testing, Marcon et al. similarly found that a common reason for testing was 'the desire to solidify a sense of self' (Marcon et al. 2021:139).

The survey: background, aims, and methodology

There has been little research on people's attitudes towards genealogy, but a survey conducted in 2015 by The Centre for Critical Heritage Studies, University of Gothenburg touched on some of these issues. It used a nationwide survey to analyse socio-demographic and attitude variables related to cultural heritage, including genealogy, in Sweden. The study was carried out in collaboration with the SOM (Society, Opinion and Mass Media) Institute, a university-based research organization and infrastructure for national survey data, and each question was answered by about 2,700 respondents (Brodén 2017). According to the survey, as many as 13 per cent of the Swedish population had researched their genealogy at least once during the past

year. This relatively high number may, however, to some extent be due to different interpretations of the question asking how often they had done genealogy research during the last 12 months; some respondents might have had a wider conception of what sort of things genealogy research includes. The findings also indicate that, as expected, it is more common for older people to conduct genealogy research, with 17 per cent of the 65–85-year-olds stating that they had done some form of genealogical research at least once during the last year (Brodén 2017:47).

The SOM survey data generally indicate the importance of demographic factors in understanding the relations between people and cultural heritage, and this may have some bearing on attitudes to genealogy as well. For example, women are more active than men when it comes to taking part in a wide range of cultural activities, including those that can be related to national cultural heritage, with class and education also being important factors (e.g. Antoni 2008; Weibull et al. 2008). In the context of the present article, it should be noted that the SOM data specifically indicate that Swedes who are negative towards immigration to a lesser extent participate in activities that are associated with their national cultural heritage than those who are not (Brodén 2017:14, 2018). Such findings point to the complexities involved in the interconnections between personal, cultural, and national heritage.

In 2018, The Centre for Critical Heritage Studies, University of Gothenburg, followed up on the SOM survey by conducting a nationwide survey in collaboration with the Swedish Society for Genetic Genealogy. The latter organization, through its networks, distributed the survey to members of a range of different genealogy groups (The Federation of Swedish Genealogical Societies through its webpage '*Roots*', and a selection of key Swedish Facebook groups who at the time were interested in DNA and genealogy and known to the Society) over two months. Almost 900 answered the questionnaire. There were in total 19 questions broadly divided into 1) background factors, such as gender, age and educational background, 2) motivations behind the respondent's interest in genealogy and DNA testing, and finally 3) their perceptions of their heritage, history and family as influenced by the test. The questions were posed to allow for a degree of interpretation, and it used terms that the respondents from the Society were likely to be familiar with. Through this data it has been possible to capture basic tendencies; the results are summarized quantitatively in Supplementary File 1. The survey also invited the submission of additional personal comments, which we use to further scrutinize certain aspects (Supplementary File 2).

The first group of questions (Q1 to Q4 in Supplementary File 1) aimed to capture the emergent interest in DNA testing: to map the types of tests taken (autosomal, Y-DNA and/or mtDNA), what had prompted the inter-

est in DNA testing, and how much time people would spend on this. The second group of questions (Q5 to Q11), aimed to map whether and how the results of the DNA test changed people's interests, their relationships to others, and their perception of their own identity. To that group of questions belongs also Q12 and Q14, asking about how the results affected their personal relations as well as notion of identity. For clarity, it should be noted that we will use concepts such as identity cautiously, and only in a general sense to give context to the statistics. We do this to avoid the conflicting issues that might arise when combining complex analytic concepts that have intrapersonal connotations with an analysis of survey data. Question 13 concerns opinions about the ethical sensitivity of the DNA results in the hands of commercial and political actors. Finally, questions Q15 to Q19 document relevant background factors, namely gender, age groups, educational background, as well as residence and membership of other associations to get a better understanding of the population behind the expanding interest in personal DNA.

Results

THE CONSUMERS OF COMMERCIAL DNA KITS

The survey had in total 891 respondents, with respectively 348 (39 per cent) male and 466 (52 per cent) female. A total of 77 people did not state their gender. The slight majority of female respondents is not large enough to warrant a dichotomization of all survey questions, and gender identity affects the responses to most questions very little. The majority are 50–79 years old (see Figure 1 for the age distribution) and most live in larger urban areas. A similar pattern around gender and age has also been seen in other surveys of consumers (e.g. Marcon et al. 2021). Approximately 60 per cent have a university-level tertiary education, which is significantly higher than in the Swedish population overall (Figure 2). More than 80 per cent of respondents aged 65 and above state that they are part of a genealogical society, see Figure 3. This number is below 50 per cent for age 50 and below. Similarly, around 66 per cent of all respondent's state that they are active or involved in an interest organization with 63 per cent stating that they are active in a genealogical, cultural, historical, or local resident association, possibly indicating that a majority of respondents have similar interests in history and heritage. Personal DNA testing seems to have mobilized a distinct, rather well-educated segment of society that has reached an age when they have the time to follow this new interest. It may also indicate a sector of society in which reflection on family and time is explicit. This could well be the same group who visits museums regularly, the so-called 'culture-vultures'

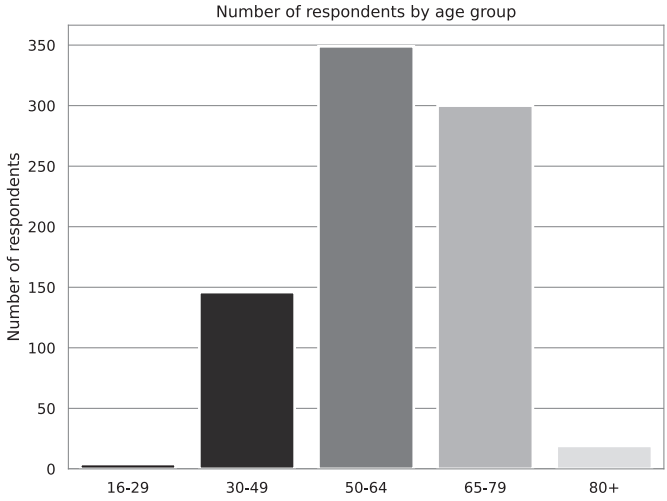

Figure 1. The age distribution of the respondents, showing a majority between 50–80 years old, and few respondents in the ages 16–29 and 80+.

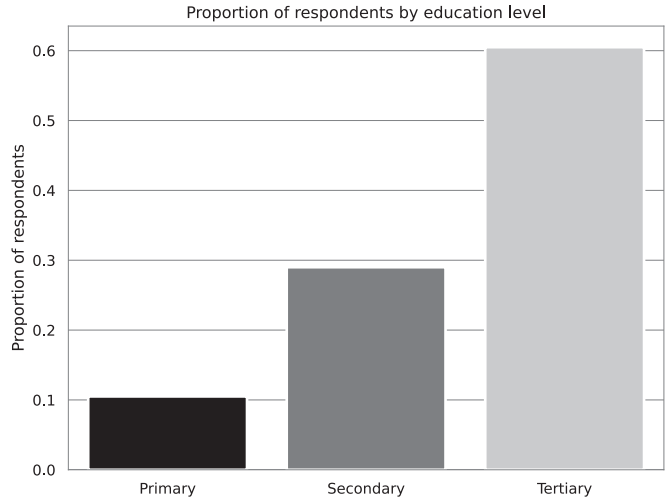

Figure 2. The education level of the respondents, the majority of which have a university-level tertiary education.

(Merriman 2016). Interestingly, our survey did not indicate any significant differences between men and women regarding DNA ancestry testing. This stands in contrast to Swedish national survey data which suggest that in general mature, well-educated women are more active than other groups when it comes to a broad range of cultural activities, including book reading, library visits, and theatre-going (Antoni 2008; Brodén 2013, 2017, 2018; Weibull et al. 2008).

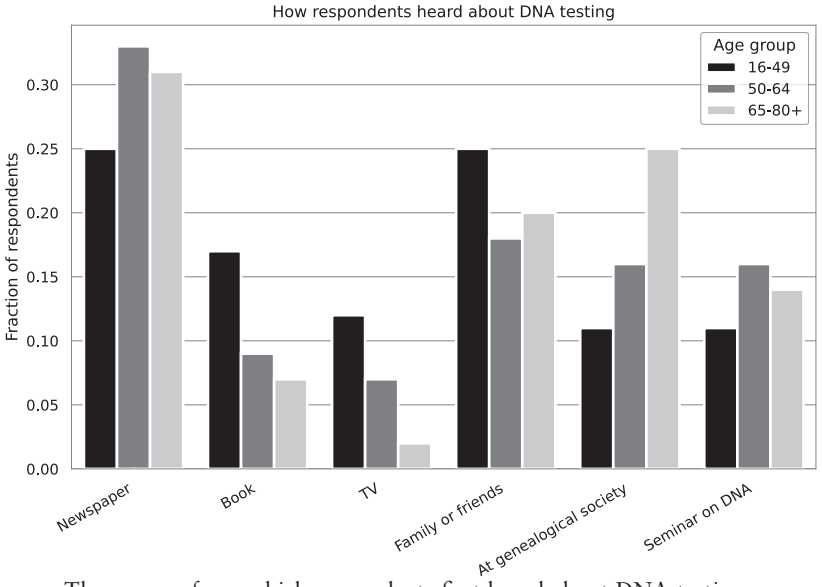

Figure 3. The sources from which respondents first heard about DNA-testing, separated by age group.

There is nonetheless great diversity in where respondents claim to have first heard about DNA testing in genealogy. Figure 4 shows that around 30 per cent of all ages were informed by articles in newspapers. Interestingly, younger people are more often informed through written and televised media, with a significant portion hearing it from their family and friends. However, in the comments 120 respondents referred to the internet and social media as their main source, which conforms well with the younger group, as we did not have these sources in the questionnaire. Meanwhile, older respondents first heard of DNA testing through more formal settings, such as a genealogical society or seminars, which is in agreement with a greater proportion of older members of these societies. Apart from the traditional genealogical society, social media such as Facebook and YouTube are prominent sources of information. Interestingly, comments reveal that two authority figures in Swedish family research, the genealogist Peter Sjölund and the journalist Karin Bojs, influenced a notable share of the respondents. This is possibly due to their widely-read publications and appearances in various media (Bojs 2015; Sjölund 2019). Also, from the comments it is clear that many had continued their readings, and 72 even listed titles of the books.

The share of each gender taking an autosomal test is roughly equal to the gender distribution of the responding surveyed population (Figure 5), but a notably different proportion was taking the tests for Y-DNA (tracing

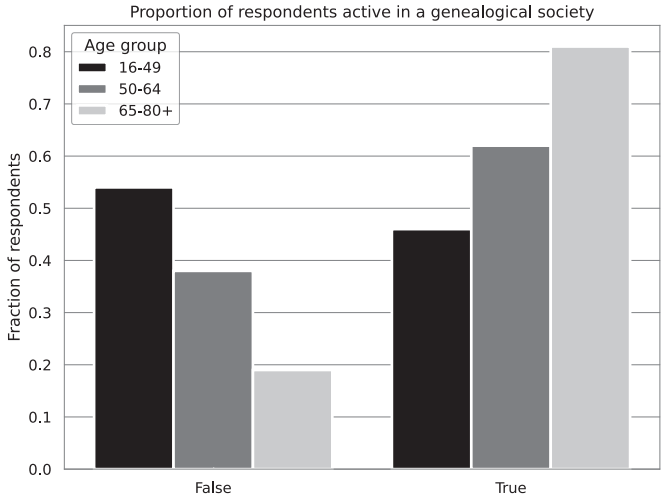

Figure 4. Fraction of respondents active in genealogical societies, divided by age group.

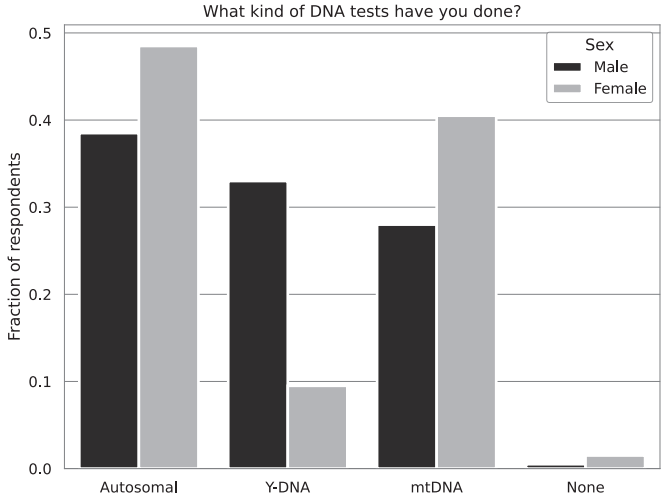

Figure 5. The choices of DNA tests among respondents. Observe that although women cannot take the Y-DNA test, some may let their male relatives take the test as a proxy.

paternal lineage) and the mtDNA (tracing maternal lineage), with a slightly higher difference in the proportion of women taking the mtDNA test. Notably, women cannot take the Y-DNA test, but a sizable share replies that they have done so. While this may seem contradictory, a likely explanation is that female respondents sometimes recruit family members to take a DNA test to gain access to their male genetic heritage.

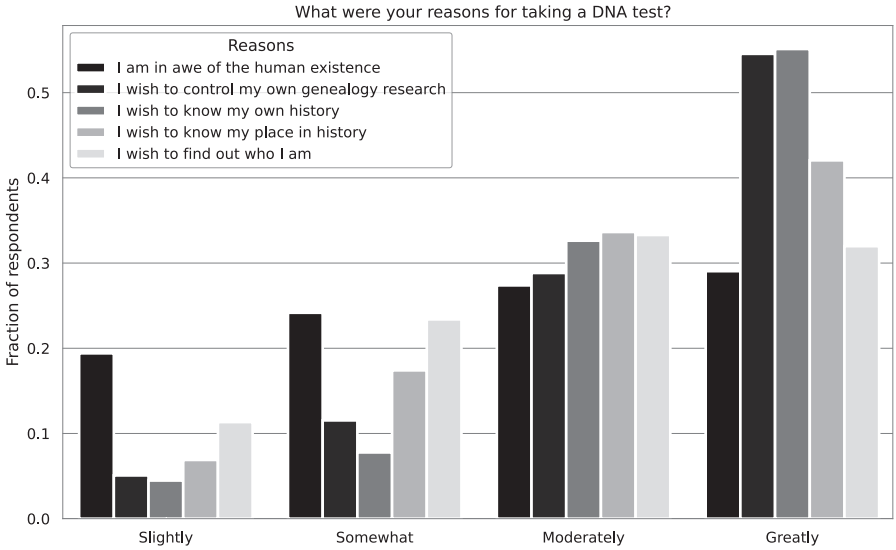

Figure 6. The reasons for taking a DNA test are mainly weighted towards getting to know one's history, rather than an aspect of identity or humanity.

MOTIVATIONS AND PERCEPTIONS

The answers about motivations for taking a DNA test were collected on a scale indicating the degree to which the respondents agreed that the proposed motivations aligned with their own, see Figure 6. The respondents' answers and motivations are similar but clearly dominated by getting to know one's own history and place in history. More introspective motivations such as respondents wanting to know 'who they are' and especially 'being in awe of human existence' played a smaller role in getting the DNA tests. The additional comments also reveal that many are interested in finding unknown relatives, '*unknown*' (Swedish: *okänd*) being the most common adjective in the comments, many looking for potential relatives abroad.

Moreover, comments indicate that many participants were intrigued by the tests' ability to reach further back in time than they had been able to do based on written sources alone. In the comments 40 per cent were interested in getting evidence of unknown kin, and 40 per cent were interested in looking further back in time. Considering that the older population is overrepresented in the survey, younger age groups may have different motivations for taking up genealogical research and taking a DNA test. However, as illustrated in Figure 7, these motivations are similarly distributed across all ages. This indicates that the underlying reason for the skewed age profile of the respondents is not due to this factor.

Figure 7. Motivation for taking the test, divided and normalized by age, indicating very little difference between the respondents. Numbers indicate the number of respondents.

The emphasis on learning about oneself and one's place in history is not surprising. It matches what the commercial kits promise, as discussed above, and it also latches onto and provides ways of expanding on traditional interest in family history. But the answers also reveal how the aims and scope of 'family' history have become conceptually expanded due to the possibilities created by DNA research. The ideas of tracing old lineages and of searching for unknown relatives are technologically aided motivations that focus on filling gaps in knowledge. We do, however, propose that beyond harvesting the benefits of new technologies, the perception of self and genetic heritage does not appear radically altered or challenged despite the possibility of making connections to a deeper past.

LEARNING ABOUT SELF AND HISTORY, CONSTRUCTING GENETIC HERITAGE

The respondents were asked to estimate whether their views on certain topics changed post-testing, for example their understanding of their personal history (Figure 8) and whether the result had affected their views relating to notions of nationality, ethnicity, and migration (Figure 9). In general, respondents state that their views have changed little since taking the test. The standout was their views on migrations, where approximately half of respondents claim their views had changed. This is in stark contrast to the views on their own nationality, where more than 40 per cent state that nothing had changed. This was also confirmed in the comments and could indicate a disconnect among the respondents between nationality and

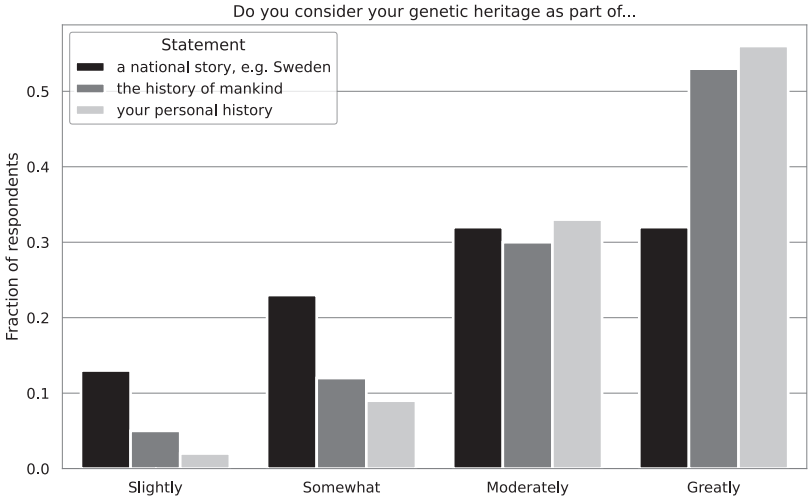

Figure 8. The fraction of respondents who consider their genetic heritage as part of some kind of grand story, indicating that few connect the genetic heritage to national identity.

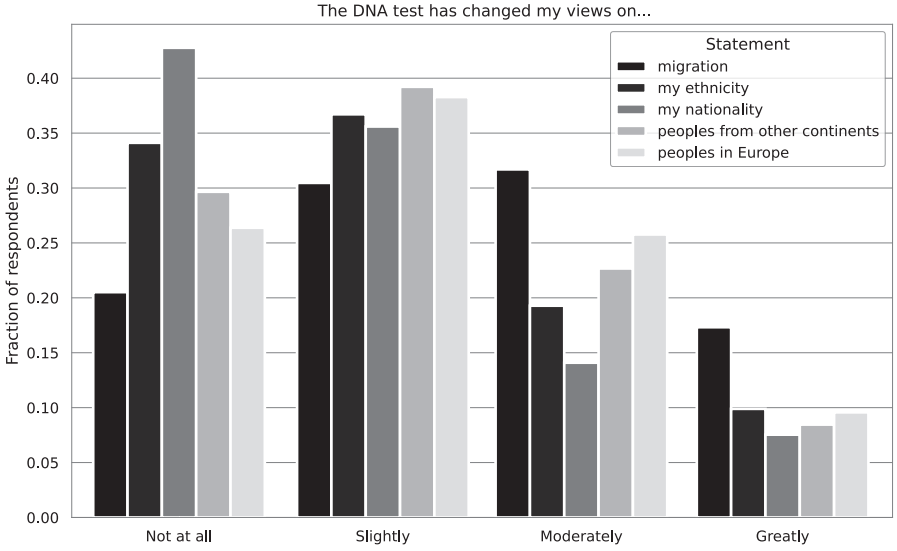

Figure 9. The degree to which the DNA test changed the views of respondents. Most views remained largely unchanged, except for those pertaining to migration.

biology (DNA), or simply that nationality in general is perceived as more fixed than the other subjects listed. Figure 8 supports the former hypothesis, showing that only about 30 per cent of respondents strongly consider their genetic heritage to be part of a national story. To further nuance this, we

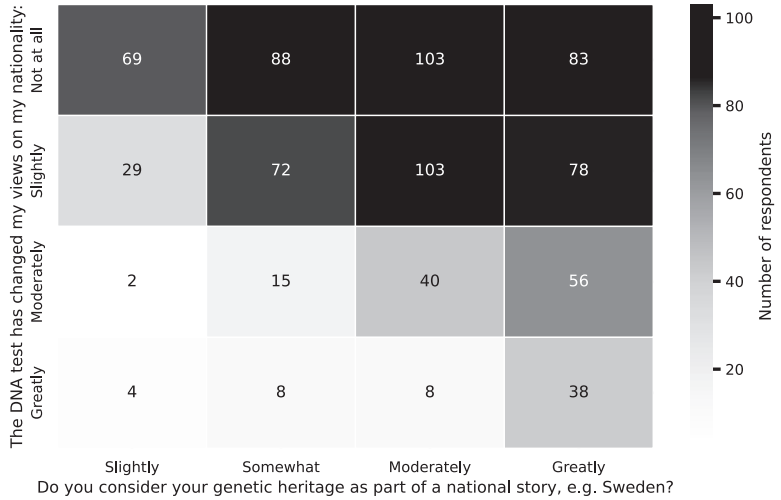

Figure 10. Cross table comparing the intersection of the attitudes of genetic heritage as part of a national story, and whether the test changed one's views on nationality, indicating that few respondents have changed views on their nationality after taking the DNA test, irrespective of their views on their genetic heritage.

cross-examine the answers of whether people's genetic heritage is part of a national history with the answers about whether the respondents' views on their nationality has changed. Figure 10 shows a cross tabulation of these two questions, indicating that a large number of respondents do not think their views on nationality have changed, no matter how they view their genetic heritage. When asked to what degree the DNA test had changed the respondents' attitudes, for example becoming more humble, tolerant, or broadminded, most respondents gave the same answer to all three questions, with a correlation coefficient between all responses in the range 0.8 to 0.87. This indicates that the options were hard to distinguish from each other. Moreover, most respondents reply that they already consider themselves comparatively humble, tolerant, and broadminded.

Overall, the survey data suggest that getting personal genetic information had only superficial cognitive or social effects in most cases. Moreover, the DNA test results generally did not affect the interviewees' perceptions of and attitudes towards parents, siblings, and other family members. This attitude was also confirmed by the free text, with 50 per cent missing the option of stating that it had no effect at all. Around 20 per cent claimed finding family members had changed their understanding of their relationships; this seems a natural response and does not in itself suggest that genetic testing alters notions of Self and family, although it may expand both.

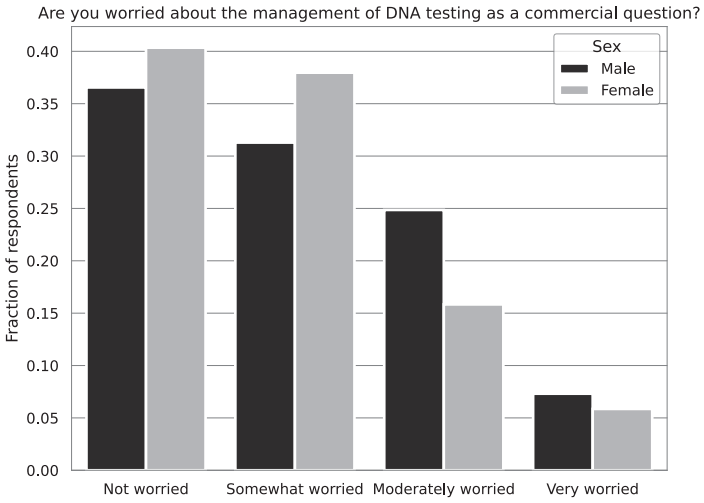

Figure 11. Respondents' concerns regarding ownership of genetic data.

OWNERSHIP AND POLITICS OF GENETIC HERITAGE AND THE PAST

Ownership of genetic information frequently emerges as a political or cultural-rights concern and is often discussed in the media (Reardon & TallBear 2012; Sawyer 2021). Our genomes contain a wealth of sensitive information and how companies are supposed to store, handle, and provide access to these data is subject to regulation and highly contested. But how widespread are such concerns in countries like Sweden, and how do they become articulated vis-à-vis personal DNA data? Respondents were asked to estimate their degree of concern over the management of the tests in the context of ethics as well as political and commercial interests. Figure 11 shows that most respondents were somewhat or not at all worried by this (approximately 80 per cent), but somewhat more worried about commercial influences over political ones. Interestingly, this difference is more pronounced between genders, where women are less worried than men (21 per cent versus 33 per cent being 'moderately worried' or more). Comments reveal that a lot of the concern is centred around genetic disorders, and specifically how the presence of inherited diseases might be used by commercial insurance companies. In terms of concern over political interests, this result is strikingly different from views expressed internationally amongst different indigenous communities, where historical abuse and misuse of biological data have been rife (Reardon & TallBear 2012; TallBear 2013). Without a similarly contested historical legacy, the Swedish respondents did not share, or maybe did not even recognize, this as an issue. There was, however, a distinct concern (50 per cent of comments) about their ability to

understand the information they had received. The nature of this concern was not, however, well illuminated by the questionnaire. The concern about information, or the intelligibility of the information, has also been raised in other surveys (e.g. Marcon et al. 2021; Scully et al. 2016).

Discussion and conclusions

Several themes emerge from the questionnaire results and comments. These complement existing emerging interest in people's reception and enactment of genetic knowledge (e.g. Scully et al. 2016) and help to widen insights into these contemporary practices and concerns, including how they may link to notions of history and the past. Our explicit interest has been whether and how expectations and the subsequent 'performance of genetic knowledge' are being shaped and, also, whether this should be characterized as a (new) form of heritage. More specifically, we ask whether we see new formulations of identity and genetic heritage influenced by popular consumptions of genetic information, or are the genetic information co-opted into existing notions of identity and family?

Understanding the motivations leading people to participate in creating these new kinds of bio-socio-genetic knowledge is a key issue emerging from this study. Although the findings of our study need to be followed up, including comparative studies of other countries and different sectors within society, the results challenge the idea that genetic genealogies merely represent a continuation of earlier rather narrow archive-based family genealogies, while at the same time rejecting easy suggestions that the motivations are largely abstract and about placing oneself in the history of 'mankind'. A striking feature from the survey is, therefore, that whilst it does suggest interest in the more remote pasts, the main motivation is clearly the wish to establish the scale of family networks by exploring the new technology. This argues that it is important to distinguish analytically between the importance of ancestry and relationality as DNA analyses are now able to provide both specific instances of deep past relations (in place of previous, more abstract ideas of ancestry) and searching out direct biological kin. Tracing personal relations appears to be the strongest motivation for taking a test. Thus, in the comments to question nine, 50 per cent of the respondents said they had discovered new family, and 35 per cent had also got new friends, while 10 per cent had lost family. This is a result of the fragmentation of knowledge about kin as a product of historically recent or ongoing migrations, making finding relatives and looking for 'lost kin' a common rationale for using DNA testing (see also Guerrini et al. 2022).

This reason is explicitly personal, and it corresponds directly to what the providers promise in their advertisements.

The further question this raises is whether people (knowable or unknowable) try to activate the data they receive in a manner that aims to convert a biogenetic fact into a sociocultural aspiration. The new technologies might even give people a formulation of their past that can fuel their aspiration to establish new kinds of future relations based on quite traditional ideas of kinship.

The findings also address questions about whether and how the new form of genetic knowledge, or a 'heritage of Self', may influence notions of Self and relationships to others, including the nation. We speculated about whether the DNA testing would make reflections on the Self more complicated and variegated as the differences between social and biological relations are laid bare. We wondered whether these new practices might affect people's notion of belonging with others, including the nation, and thus also articulate ideas about shared heritage in new ways. This seems not to have been the case, as respondents were relatively unaffected in terms of what may be seen as a range of socio-political relations. This suggests that some of the greater complexities that DNA-testing may reveal about the overlap between different identities (e.g. family, ethnicity, nation) are not of great interest or too complex to affect the respondents' consumption of the data. Through these new technologies, genealogy may become a particular articulation of how heritage/inheritance is understood and argued, but not the sole author of them.

The two motives are not contradictory but are distinct. Historical context is clearly a significant issue guarding against excessive generalization. As we discussed earlier, historical demographers view nuclear family, neolocal residence, and late marriage patterns as features that have characterized northwestern European kinship since at least the Middle Ages. This has typically resulted in shallow family genealogies (three-generational); the importance of the new test is that it promises to expand the reach. Moreover, the history of out-migration of junior male members of families provides a strong interest in tracing the spatial extent of potential kinship and marriage networks. Genetic results developed for ancestry studies tend towards the promotion of surprise and discovery. This may equally be true of settler colony communities emanating from northwestern Europe and settled in many parts of the world. Where these communities are dominant over Indigenous peoples or people of non-European origins, how new kinds of bio-socio-genetic data will be adapted and used in conditions of racism and social inequality is an immensely complex topic (Abel 2022; Nelson 2016; TallBear 2013) and lies outside the scope of this paper. However, our results suggest that the popularity of DNA testing in Sweden,

northwestern Europe and North America is also, at least in part, linked to their connected histories.

Finally, it seems that the results of our study do not support previous arguments (Abel & Frieman 2022; Strand & Källén 2021) that the widespread expansion of genealogy DNA testing in the western world might stimulate nationalism and other forms of identity formation, including white supremacism. It should be noted, however, that we are dealing with a particular segment of Swedish society that tends to have higher levels of formal education, and which may not reflect the broader nationalist and anti-migration movements in Sweden and other European countries. In the latter contexts, critical debates appear to be more directly tied to findings from aDNA research (summarized in Kristiansen 2022) and their wide circulation in popular media (Källén 2019). As the number of high-resolution ancient genomes continues to increase, including Medieval and early historical periods, we wonder whether in the future personalized DNA testing will increasingly become connected with ancient DNA results. This will bring new challenges, not least ethical ones (Källén 2025), but also questions about what the desired outcomes and potential repercussions would be from extending the notion of Self.

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References

Abel, S. 2022. *Permanent Markers: Race, Ancestry, and the Body after the Genome*. Chapel Hill, NC: University of North Carolina Press.

Abel, S. & Frieman, C.J. 2023. On Gene-Ealogy: Identity, Descent, and Affiliation in the Era of Home DNA Testing. *Anthropological Science*. Vol. 131, pp. 15–25, doi:10.1537/ase.2210242.

Antoni, R. 2008. De mångas kultur. In: Nilsson, L. & Antoni, R. (eds), *Medborgarna, regionen och flernivådemokratin*, pp. 9–106. Gothenburg: SOM Institute.

Benn Torres, J. 2020. Anthropological Perspectives on Genomic Data, Genetic Ancestry, and Race. *American Journal of Physical Anthropology*. Vol. 171(70), pp. 74–86, doi:10.1002/ajpa.23979.

Bojs, K. 2015. *Min europeiska familj: De senaste 54 000 åren*. Stockholm: Albert Bonniers Förlag.

Broden, D. 2018. Negative to That of Others, but Negligent of One's Own? On Patterns in National Statistics on Cultural Heritage in Sweden. In: Mäkelä, E., Tolonen, M. & Tuominen, J. (eds), *DHN 2018: Proceedings of the Digital Humanities in the Nordic Countries 3rd Conference*, pp. 7–9 March 2018. Helsinki: University of Helsinki.

Brodén, D. 2013. *Kulturvanor i Sverige 1989–2012*. SOM-rapport.

Brodén, D. 2017. *Kulturarv i förändring: Mönster och vidgade perspektiv*. SOM-rapport.

Brück, J. & Frieman, C.J. 2021. Making Kin: The Archaeology and Genetics of Human Relationships. *TATuP: Journal for Technology Assessment in Theory and Practice*. Vol. 30(2), pp. 47–52, doi: 10.14512/tatup.30.2.47.

Carlson, H. 2020. The Route to Your Roots: New Ethnic Symbols in the Age of the Genome. *Nations and Nationalism*. Vol. 26(4), pp. 826–844, doi:10.1111/nana.12642.

Fukuyama, F. 2018. *Identity: Contemporary Identity Politics and the Struggle for Recognition*. London: Profile Books.

Glynis, M. 2015. *Coping with Threatened Identities*. New York: Psychology Press.

Goody, J. 1996. Comparing Family Systems in Europe and Asia: Are There Different Sets of Rules? *Population and Development Review*. Vol. 22(1), pp. 1–20.

Graves, J.L. & Goodman, A.H. 2021. DNA and Ancestry Testing. In: Graves, J.L. & Goodman, A.H. (eds), *Racism, Not Race: Answers to Frequently Asked Questions*, pp. 179–196. New York: Columbia University Press.

Guerrini, C.J., Robinson, J.O. [...] Schuman, O. & McGuire, A.L. 2022. Family Secrets: Experiences and Outcomes of Participating in Direct-to-Consumer Genetic Relative-Finder Services. *The American Journal of Human Genetics*. Vol. 109(3), pp. 486–497, doi:10.1016/j.ajhg.2022.01.013.

Hajnal, J. 1965. European Marriage Patterns in Perspective. In: Glass, D.V. & Eversley, D.E.C. (eds), *Population in History*, pp. 101–143. London: Hodder and Stoughton.

Hartman, M.S. 2004. *The Household and the Making of History: A Subversive View of the Western Past*. Cambridge: Cambridge University Press.

Hazel, J.W., Hammack-Aviran, C. [...] Beskow, L.M. & Clayton, E.W. 2021. Direct-to-Consumer Genetic Testing: Prospective Users' Attitudes toward Information about Ancestry and Biological Relationships. *PloS One*. Vol. 16(11), e0260340, doi:10.1371/journal.pone.0260340.

Jobling, M.A., Rasteiro, R. & Wetton, J.H. 2015. In the Blood: The Myth and Reality of Genetic Markers of Identity. *Ethnic and Racial Studies*. Vol. 39(2), pp. 142–161, doi:10.1080/01419870.2016.1105990.

Kajda, K., Marx, A. [...] Issa, M. & Frase, I. 2018. Archaeology, Heritage, and Social Value: Public Perspectives on European Archaeology. *European Journal of Archaeology*. Vol. 21(1), pp. 96–117, doi:10.1017/eaa.2017.19.

Källén, A. 2025. *The Trouble with Ancient DNA: Telling Stories of the Past with Genomic Science*. Chicago: University of Chicago Press.

Källén, A., Mulcare, C., Nyblom, A. & Strand, D. 2019. Archaeogenetics in Popular Media: Contemporary Implications of Ancient DNA. *Current Swedish Archaeology*. Vol. 27, pp. 69–91, doi:10.37718/CSA.2019.04.

Kennett, D. 2011. *DNA and Social Networking: A Guide to Genealogy in the Twenty-First Century*. Stroud: The History Press.

Kristiansen, K. 2022. *Archaeology and Genetics in European Prehistory*. Cambridge: Element Books.

Laslett, P. 1969. Size and Structure of the Household in England Over Three Centuries. *Population Studies*. Vol. 23(2), pp. 199–223.

Laslett, P. 1983. Family and Household as Work Group and Kin Group: Areas of Traditional Europe Compared. In: Wall, R., Robin, J. & Laslett, P. (eds), *Family Forms in Historic Europe*, pp. 513–563. Cambridge: Cambridge University Press.

Laslett, P. 2021. *The World We Have Lost*. London: Routledge.

Lewis, A.C.F., Molina, S.J. […] Neale, B.M. & Allen, D.S. 2022. Getting Genetic Ancestry Right for Science and Society. *Science*. Vol. 376(6590), pp. 250–252, doi:10.1126/science.abm7530.

Lewontin, R.C. 1972. The Apportionment of Human Diversity. In: Dobzhansky, T., Hecht, M.K. & Steere, W.C. (eds), *Evolutionary Biology: Volume 6*, pp. 381–398. New York: Springer.

Macdonald, S. 2013. *Memorylands: Heritage and Identity in Europe Today*. London: Routledge.

Macfarlane, A. 1978. *The Origins of English Individualism: The Family, Property and Social Transition*. Oxford: Basil Blackwell.

Mallick, S., Micco, A. […] Patterson, N. & Reich, D. 2024. The Allen Ancient DNA Resource (AADR): A Curated Compendium of Ancient Human Genomes. *Scientific Data*. Vol. 11, 182, doi:10.1038/s41597-024-03031-7.

Malm, C.J. 2016. Genealogy, Archives and Uses of the Past. Conference paper, ACHS Montréal, Canada. Available at: https://urn.kb.se/resolve?urn=urn:nbn:se:mau:diva-58405

Marcon, A.R., Rachul, C. & Caulfield, T. 2021. The Consumer Representation of DNA Ancestry Testing on YouTube. *New Genetics and Society*. Vol. 40(2), pp. 133–154, doi :10.1080/14636778.2020.1868988.

Merriman, N. 2016. *Beyond the Glass Case: The Past, the Heritage and the Public*. London: Routledge.

Nash, C. 2015. *Genetic Geographies: The Trouble with Ancestry*. Minneapolis: University of Minnesota Press.

Nelson, A. 2016. *The Social Life of DNA: Race, Reparations, and Reconciliation After the Genome*. Boston: Beacon Press.

Nordgren, A. & Juengst, E.T. 2009. Can Genomics Tell Me Who I Am? Essentialistic Rhetoric in Direct-to-Consumer DNA Testing. *New Genetics and Society*. Vol. 28(2), pp. 157–172, doi: 10.1080/14636770902901595.

Novembre, J., Johnson, T. […] Stephens, M. & Bustamante, C.D. 2008. Genes Mirror Geography Within Europe. *Nature*. Vol. 456(7218), pp. 98–101, doi:10.1038/nature07331.

Parthasarathy, S. 2010. Assessing the Social Impact of Direct-to-Consumer Genetic Testing: Understanding Sociotechnical Architectures. *Genetics in Medicine: Official Journal of the American College of Medical Genetics*. Vol. 12(9), pp. 544–547, doi:10.1097/GIM.0b013e3181e71c70.

Reardon, J. & TallBear, K. 2012. 'Your DNA Is Our History': Genomics, Anthropology, and the Construction of Whiteness as Property. *Current Anthropology*. Vol. 53(S5), pp. S233–S245, doi:10.1086/662629.

Roberts, J.S. & Ostergren, J. 2013. Direct-to-Consumer Genetic Testing and Personal Genomics Services: A Review of Recent Empirical Studies. *Current Genetic Medicine Reports*. Vol. 1(3), pp. 182–200, doi:10.1007/s40142-013-0018-2.

Roth, W.D., Yaylacı, Ş., Jaffe, K. & Richardson, L. 2020. Do Genetic Ancestry Tests Increase Racial Essentialism? Findings from a Randomized Controlled Trial. *PloS One*. Vol. 15(1), e0227399, doi: 10.1371/journal.pone.0227399.

Ruggles, S. 2009. Reconsidering the Northwest European Family System: Living Arrangements of the Aged in Comparative Historical Perspective. *Population and Development Review*. Vol. 35(2), pp. 249–273, doi: 10.1111/j.1728-4457.2009.00275.x.

Sawyer, A. 2021. Who Owns Your DNA? *BioTechniques*. Vol. 71(1), pp. 355–357, doi:10.2144/btn-2021-0059.

Scully, M. 2018. Constructing Masculinity through Genetic Legacies: Family Histories, Y-Chromosomes, and 'Viking Identities'. *Genealogy*. Vol. 2, pp. 1–17, doi:10.3390/genealogy2010008.

Scully, M., Brown, S.D. & King, T. 2016. Becoming a Viking: DNA Testing, Genetic Ancestry and Placeholder Identity. *Ethnic and Racial Studies*. Vol. 39(2), pp. 162–180, doi:10.1080/01419870.2016.1105991.

Sjölund, P. 2016. *Släktforska med DNA*. Sveriges Släktforskarförbunds Handböcker 9. Solna: Sveriges Släktforskarförbund.

Sjölund, P. 2019. *Från DNA-test till släktträd*. Solna: Sveriges Släktforskarförbund.

Skogsjö, H. 1983. Swedish Genealogical Societies 1883–1983. *Swedish American Genealogist*. Vol. 3:3. Available at: https://digitalcommons.augustana.edu/swensonsag/vol3/iss3/2

Sovič, S. 2008. European Family History: Moving Beyond Stereotypes of 'East' and 'West.' *Cultural and Social History*. Vol. 5(2), pp. 141–163, doi:10.2752/147800408X299602.

Strand, D. & Källén, A. 2021. I Am a Viking! DNA, Popular Culture and the Construction of Geneticized Identity. *New Genetics and Society*. Vol. 40(4), pp. 520–540, doi:10.1080/14636778.2020.1868988.

Supplementary File 1. Quantitative results from the survey 'DNA testing as part of genealogy'. Available at: https://publicera.kb.se/csa/issue/

Supplementary File 2. Comments to the survey 'DNA testing as part of genealogy'. Available at: https://publicera.kb.se/csa/issue/

Tadmor, N. 2010. Early Modern English Kinship in the Long Run: Reflections on Continuity. *Continuity and Change*. Vol. 25(1), pp. 15–48, doi:10.1017/S0268416010000093.

TallBear, K. 2013. *Native American DNA: Tribal Belonging and the False Promise of Genetic Science*. Minneapolis: University of Minnesota Press.

Thornton, A. 2013. *Reading History Sideways: The Fallacy and Enduring Impact of the Developmental Paradigm on Family Life*. Chicago: University of Chicago Press.

Weibull, L., Nilsson, Å. & Holmberg, S. 2008. Det myckna bokskrivandet tar aldrig slut. In: Holmberg, S. & Weibull, L. (eds), *Skilda världar: trettioåtta kapitel om politik, medier och samhälle*, pp. 257–268. Gothenburg: SOM Institute.