THE ROLE AND THE PLACE OF GENETICS IN MODERN DEBATES ON JEWISHNESS

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ABSTRACT

Over the past few years, genetics and genetic analysis have become a popular new tool for population-based historical research. Thus, a study of Jewish origin and kinship between major groups has dispelled many myths and prejudices that have existed for a long time. At the same time, the use of genetic analysis at the academic level leaves questions, doubts, and creates a gap in the study of large and small Jewish groups, which directly affects the private level. The popularity of recreational genetics and the growing number of private commercial genetic laboratories allow people to find out information about the origin, but the quality, accessibility, and truthfulness of such information is not controlled, which can have a certain effect on people's self-perception and self-identification. The present thesis investigates how genetics affects the modern understanding of Jewishness in general and what it tells us about Jewish self-perception and self-determination. Based on theoretical analysis and expert opinion obtained through interviews with genealogists and employees of private commercial genetic laboratories and with people who have done DNA testing for origin, this work claims that genetic research creates a new approach to understanding Jewishness and building selfperception using DNA testing. Moreover, for many, the results of genetic testing seem objectively scientifically true and indisputable, although genetic analysis has a lot of shortcomings, simplifications, and inaccuracies. This study examines for the first time the reasons why, despite abuses genetics researches on the past, the genetics argument gaining popularity among population and used as a new tool on scholar level on the Jewish case.

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1. INTRODUCTION

1.1. How genetics brings challenges and questions

Issues of origin, kinship, and self-identification for a long time remain hot and relevant. Therefore, a new approach, new research, new tools in this field always cause a lot of controversies and attract the attention of researchers and the wide audience. This has been happening for the past few years with the advent of genetics in Jewish Studies on questions of Jewish origin and understandings of Jewishness. At the academic level, there are many different points of view and theories that use different approaches, concepts, and methods of analysis. Annually there is news about new studies of the origin of different groups of Jews (mainly Ashkenazi Jews), their kinship with other groups. The headings of such articles are immediately striking: "Ashkenazi Jews' mysterious origins unraveled by scientists thanks to ancient DNA"¹, "Scientists reveal Jewish history's forgotten Turkish roots"², "New study sheds light on the origin of the European Jewish population"³. Can genetic research really tell the truth about the past and tell who we really are?

Over the past couple of years, news about various manifestations of genetics began to appear more and more often. Moreover, genetics has ceased to seem a complicated science of cloning, genetics has become one of the main sources of information about people. At first, genetic analysis became popular to prove kinship. This type of service was resorted to only by those who had a need to clarify family ties. However, now anyone can easily order a DNA test at home and within a couple of weeks have the opportunity to find distant relatives and begin to communicate with them in a special social network. Genetic analyzes are gaining in

³ New study sheds light on the origin of the European Jewish population. URL: https://www.sciencedaily.com/releases/2013/01/130116195333.htm (Access date: 10.04.2020).

 ¹ Ashkenazic Jews' mysterious origins unraveled by scientists thanks to ancient DNA. URL: <u>https://theconversation.com/ashkenazic-jews-mysterious-origins-unravelled-by-scientists-thanks-to-ancient-dna-97962</u> (Access date: 10.04.2020).
 ² Scientists reveal Jewish history's forgotten Turkish roots. URL:

https://www.independent.co.uk/news/science/archaeology/scientists-reveal-jewish-historys-forgotten-turkishroots-a6992076.html (Access date: 10.04.2020).

popularity because with their help you can learn about a predisposition to a number of diseases, confirm kinship, learn about talents and abilities, get recommendations on nutrition and lifestyle. The popularity of genetic research is forcing more and more social, political scientists to pay attention to this field because it's posing questions about identity and its forming process. So how does genetics change science and our lives every day? Nowadays genetic testing is used to determine to belong to ethnic groups, but how does genetics create challenges for science and ordinary people in cases where belonging to a particular ethnic group is determined by various factors?

The topic of kinship between different subgroups of Jews has been a hotly debated topic for historians, anthropologists, and biologists for a long time. In 2010, the full genomes of representatives of well-known subgroups of Jews were first investigated: Ashkenazim of Europe and the USA, Sephardim of Greece, Turkey and Syria, Mizrahim of Iran and Iraq, as well as Ethiopian and Indian Jews. Researchers compared the similarities and differences in sequences of three billion "letters" of the genetic code and found out details that were unknown or were the subject of controversy. A hundred years ago, historians Maurice Fishberg and Joseph Jacobs asked themselves: who are the Jews?⁴ Is this really a single ethnic group? Or a group of unrelated tribes united by religion and culture? Since then, even such authors have appeared who tried to deduce the origin of Ashkenazim from the Khazars. You can recall the historian Shlomo Sand, who believes that Jews are only a collection of peoples who at different times adopted Judaism. The study of complete genomes refutes this hypothesis and tells us a detailed story of the resettlement of Jews and their mixing with different peoples.⁵ Such studies lead historians and anthropologists to revise their theories, but there is still no consensus

⁴ Jon Entine, *Abraham's Children: Race, Identity and the DNA of the Chosen People* (New York: Grand Central Publishing, 2007).

⁵ Gil Atzmon, Li Hao, Itsik Pe'er, Christopher Velez, Alexander Pearlman, Pier Francesco Palamara, Bernice Morrow, Eitan Friedman, Carole Oddoux, Edward Burns, and Harry Ostrer, "Abraham's Children in the Genome Era: Major Jewish Diaspora Populations Comprise Distinct Genetic Clusters with Shared Middle Eastern Ancestry," *American Journal of Human Genetics* 86, no. 6 (July 2010): 850-859.

between historians, anthropologists, and geneticists on the issue of Jewish origin and kinship. Moreover, the revision of all theories and the emergence of a new factor in genetics makes us wonder what Jewishness is, who can we attribute to this group, and by what principle?

Today, genetics is becoming an objective basis for shaping how we think about our past. However, can we argue that the results of genetic analysis are objective scientific truth? Why, with the spread of genetics, are we interested in our origin, nationality, and belonging? Why are we trying to find confirmation about ourselves in the ancestry? Are these questions an ageold interest that can be explored with new genetic tools? Although many scientists have long agreed that race is a social phenomenon, not a biological one, genetics blur these boundaries and differences.⁶

1.2.<u>Research aims</u>

The present research aims at answering the general question of how do genetics impact modern understandings of Jewishness and what does this tell us about Jewish self-perception and self-understanding? Which role does DNA ancestry testing play in the process of selfperception and self-understanding? In order to do it, I analyze existing approaches to understandings of Jewishness. Therefore, the analysis focuses on the ways that new genetic research has reframed the field of Jewish Studies. In that case, the history of genetics analysis and the history of different approaches to the understanding of Jewishness is important for the study. This paper considers how genetics legitimizes people (Jews in particular) to talk about such things as "race", "blood", "origin" and "ancestry" without thinking about the past of these criteria.

The present research investigates, for the first time, what are the new kinds of questions that scholars are posing in Jewish Studies taking into account genetic arguments, and what are the new tools to approach old questions?

⁶ Keith Wailoo, Alondra Nelson, Catherine Lee, *Genetics and the Unsettled Past: The Collision of DNA, Race and History* (New Brunswick: Rutgers University Press, 2012).

This thesis shows which role genetics plays on the academic level understanding of Jewishness and on the formation of self-understanding. It is hoped that this work will contribute to a deeper understanding of several interconnected research areas: the spread of genetic evidence in Jewish studies, reconstruction of Jewishness among scholars and other people.

The overall structure of the thesis takes the form of five chapters. Chapter One consists of introductory information and the main questions that form the research. In Chapter Two, I examine different theoretical concepts that are important for the research and review the literature on the subject. Since the current thesis lies at the intersection of several sub-topics, I have divided the literature into the following categories: Jewish origin, the presence of taboo topic in the modern scholar field, and recreational genetics. This division allowed me to build a relationship between various concepts and theories, as well as formulate an argument. The main argument is genetic research creates a new approach to the formation of selfunderstanding using DNA testing. This is most relevant for the Jewish case, where for a long time there are various approaches to understanding Jewishness, myths of Jewish origin. Moreover, the genetic argument affects not only the understanding of Jewishness but also the political component of this issue. Despite the fact that genetics is only a new tool in the field of the eternal issue of Jewishness, its novelty and biological argument make the genetic approach to understanding Jewishness an objectively scientific truth for many people. Chapter Three is concerned with the methodology used for this study. There were used two approaches: theoretical analysis and expert opinion. Chapter Four examines how genetic evidence is used in modern discussions about the concept of the Jewish people and Jewishness. Here I examine the contradictions of the biological, ethnic, and religious criteria of Jewishness. Chapter Five analyzes the research approaches and the grouping of the Jewish people in various companies and DNA databases, and the impact of DNA testing on people's self-understanding and selfperception. I conclude my thesis with a conclusion that represents the main results of the presented work.

2. THEORETICAL CONCEPTS

2.1. Jewish origin

Despite a large number of annual "discoveries of secrets of Jewish origin" that were mentioned in the introduction of this thesis, this does not qualitatively change the academic field of research on this topic. New concepts remain outside the attention of big researchers. Such studies do not create much debate with those works that were published before them. Therefore, it is difficult to talk about the unanimity of researchers or their conflicts on the example of recent publications.

However, there are examples where new genetic studies have forced a review of historical understandings and explanations. The reason for the appearance of one of the last major academic clashes was the publication of the book by Shlomo Sand "The Invention of the Jewish People". Sand argues that the Jewish people as a national-ethnic concept was created only in the 19th century.⁷ The author pays attention mainly to two related topics: a critical analysis of the evolution of Jewish historiography and the demythologization of Jewish history. He discusses in detail the formation of the concept of the Jewish race people and the Jewish-Israeli ideologies of identity. Sand's main argument is that religion and conversion from one religion to another are not a criterion for calling Jews a people like the French or Russians.⁸ However, many scholars do not agree with Sand due to the fragility of his argumentation and the lack of a high-quality evidence base. But in their opinion, genetics and origin are not the main criteria for the existence of a people, but historical memory. Moreover, many critics of Sand's work cite arguments about the formation of modern identities and nationalities. Derek Penslar argues that the basis of any nationality and identity is a cultural construct, not a biological one. Attachments, memory, traditions, and language are what unites people in ethnicity and nationality, and in the case of Jews, religion and the factor of living in different

⁷ Shlomo Sand, *The Invention of the Jewish People* (New York: Verso, 2010).

⁸ Ibid.

territories among other ethnic groups are added here.⁹ Steven Lowenstein argues that diverse groups of Jews were united by the Torah, which created a community of traditions, religion, and culture.¹⁰ It was the Torah that taught the Jews that they had common ancestors, thereby religion tried to create a community based on genealogical kinship. That is, it was important for people to have a biological aspect as proof of kinship.

Thus, we see that existing disputes about Jewish origin are based on the old dispute between constructivists and primordialists. And for argumentation, they use biological criteria: race, blood, origin, and other criteria such as language, culture, construct. The issue of Jewish origin does not have a common theoretical basis since membership in a group is determined by various factors equally (Jewishness as a religion, race, nationality, ethnicity), which complicates the development of this field. And the emergence or return of the genetic aspect and analysis brings even more questions to the disparate field of Jewish studies.

2.2. The presence of taboo topic in modern scholar field

The development of science and the improvement of analysis methods have made genetics not only a promising independent field but also as an analysis tool, a method for other fields. For a long time, attempts and studies of possible cloning, the issue of mapping the human genome, and detecting genetic disease prevailed in genetics. Later on, the agenda of genetics came the opportunity to identify hereditary diseases. Both topics have a great ethical debate so far. The issue of regulating genetic interventions has come to the fore in science: while any manipulation of human genes is banned in the USA, Chinese scientist He Jiankui announced the birth of the first genetically modified twin girls resistant to HIV. There are many questions that arise during the process of genetic testing, which have weak legal regulation or do not have

⁹ Derek Penslar, "Shlomo Sand's *The Invention of the Jewish People* and the End of the New History," *Israel Studies* 17, no. 2 (Summer 2012): 156-168.

¹⁰ Steven M. Lowenstein, *The Jewish Cultural Tapestry: International Jewish Folk Traditions* (Oxford: Oxford University Press, 2000).

at all (for example the consent of children to conduct analysis, the shelf life of DNA materials, the publication, and reuse of test results).

However, this thesis focuses on another controversial aspect of genetic research. Genetic analysis of ancestry returns us to the fact that we are again talking about "blood", "race", "origin" in the framework of the question of nationality, ethnicity. Humanity has come a long way from segregation, the Holocaust, discrimination to a modern policy of tolerance, and correctness. In modern society, the use of criteria such as "blood", "race" is unacceptable. As a rule, a person appealing to these categories is perceived as a racist or as an adherent of radical taboo ideas. As well we can say that these criteria and their unacceptability are part of what makes modern society "modern" taking into account the work of Zygmunt Bauman.¹¹ Thus it's important to take a look into the correlation between genetics and these terms in society. So why have DNA analysis tools become so popular not only among genetic scientists but also among historians, anthropologists, and ordinary people? Why do people not only want to learn more about what ethnic composition they have but also voluntarily publish their results on social networks? Firstly, it is worth noting that genetics made us again turn to the definition of the term "race". The "race" began to be redefined through the prism of emerging genetic discoveries. According to Koenig, Lee, and Richardson, the dynamic social significance of the race and the rapidly evolving genetic analysis tools were ahead of many fields.¹² In medical genetics, the race began to be considered as a basis for identifying and studying hereditary diseases.¹³ This understanding of race may be discriminatory for some groups. For example, genetic diseases and the shortcomings of the Jewish race have become one of the arguments of

¹¹ Zygmunt Bauman, *Liquid Modernity* (Cambridge: Polity, 2000).

¹² Barbara A. Koening, Sandra Soo-Jin Lee, Sarah S. Richardson, *Revisiting Race in a Genomic Age* (New Brunswick: Rutgers University Press, 2008).

¹³ Race Is Seen as Real Guide To Track Roots of Disease. URL:

https://www.nytimes.com/2002/07/30/science/race-is-seen-as-real-guide-to-track-roots-of-disease.html (Access date: 11.04.2020).

the anti-Semites.¹⁴ Other researchers, on the contrary, believe that the term "race" has lost its meaning in the modern world. With the advent of various studies on races and genetics, it was found that the differences that occur within a race are just as strong as the differences between races. Thus, we have lost the need to use another negative term. Linda L. McCabe and Edward R.B. McCabe use the term "ethnocultural group" or "ethnicity" to describe and group people of different origins from a genetic point of view.¹⁵

In the modern world, the "race" creates new cultural, political, ethical challenges. Therefore, the use of this term in the genetic field is a problematic moment. Despite this, in many works, studies, and debates, the race is present as a category of analysis. In addition, modern genetics allows people to talk about "blood". The results of DNA testing reflect the composition of the ancestry, which often leads to the fact that people talk about nationality, ethnicity which is reflected in their blood. The percentage of origin, ancestry allows people to talk about "blood purity", etc. These processes are dangerous because they appear in speech and perception unconsciously. While we cannot say how by whom and in what way the genetic information will be used in the future. However, now we are seeing dangerous moments. Moreover, the problem of genetic analysis of ancestry is not only that scientists are reviewing or re-using the criteria of blood, race, but also that it manifests itself at the everyday level. When describing the results of DNA testing, many people use the same categories of analysis, thereby returning them to daily use and legitimizing their presence in the modern world. Thus, the popularity and accessibility of genetic analysis for a wide audience raise another question: what is the meaning when using these words outside the academic context? Unfortunately, while these issues remain outside the attention and analysis of the academic community. This topic is promising for research, but despite this, in this thesis, the focus is shifted to another question.

¹⁴ Steven M. Lowenstein, *The Jewish Cultural Tapestry: International Jewish Folk Traditions* (Oxford: Oxford University Press, 2000).

¹⁵ Linda L. McCabe and Edward R.B. McCabe, *DNA: promise and peril* (Berkeley: University of California Press, 2008).

Why are genetic studies and their categories of analysis perceived as objective and neutral, despite their proximity and affinity with the taboo ones?

2.3. <u>Recreational genetics</u>

Genetics has ceased to be a science for scientists, and over the past few years, genetic testing has become increasingly common in the mass consumer market. The largest companies are already creating some kind of social network in which you can contact distant relatives discovered. More and more people are turning to DNA test companies. With the help of genetic tests, they want to learn about the origin of their ancestors, the risks of various diseases, reactions to different medicines, etc. In 2017, the largest American companies Ancestry, 23andMe, Family Tree DNA, and Israeli MyHeritage had a record number of people. But in a year their number has doubled. If in 2017 more than 13 million people decided to pass DNA tests, then in January 2019 there were already more than 26 million people.¹⁶ The spread of such tests is facilitated by the fact that they are fairly easy to do. A person simply buys a test kit, fills the test tube with saliva, and sends it to the laboratory for analysis. In addition, such tests are not too expensive (usually from \$ 60 to \$ 100). The company's specialists, receiving a test tube with saliva, extract a DNA sample from it, which is then analyzed in more detail. By analyzing the DNA material, experts answer several basic questions: where did the ancestors of this person come from, who of those who had previously passed such tests, is his relative, and how close.

It is the aspect of the origin of the ancestors that makes people think more about or rethink their belonging to a particular ethnic group. As a rule, the results show the region of origin, ethnic language community, or the country in particular. Therefore, the perception and understanding of DNA testing results can be very different and contradictory. Moreover,

¹⁶ More than 26 million people have taken an at-home ancestry test. URL:

https://www.technologyreview.com/2019/02/11/103446/more-than-26-million-people-have-taken-an-at-home-ancestry-test/ (Access date: 15.04.2020).

genetic companies themselves actively use ethnocultural clichés to demonstrate and promote their services. AncestryDNA commercials show Kyle Merker, a real person who grew up with the idea that he is German. He even danced in German folk groups and wore lederhosen. The DNA test showed that Merker was not of German origin at all and that he has mainly Scottish and Irish ancestry. And he changed his lederhosen for a kilt.¹⁷ This commercial ad looks like Merker has changed his whole worldview and attitude towards culture due to a DNA test. Often in advertisements for genetic companies, we see people who are shocked, discouraged by the results of their tests. They cry, wonder, and talk about how the test results changed their perception of themselves. Such advertising campaigns are of great interest to people because many want to discover something "unusual" in themselves. Many are convinced that DNA is who a person is or what defines it.¹⁸ However, the aspect of the influence of DNA testing on the formation of self-perception is still not fully understood due to various ethical problems and the novelty of the topic.¹⁹

2.4. Research gap

As the previous sub-chapters have shown, there is a need to understand how and why nowadays do genetic studies legitimize the use of biological criteria to explain the origin and formation of self-perception? In this regard, the present thesis aims to fill the gap in the current literature and consider how this is revealed in the Jewish case, given the fact that in the past the use of such categories has led to discriminatory policies. Taken together the main arguments from the abovementioned literature, this thesis focuses on the major questions:

https://www.youtube.com/watch?v=84LnTrQ2us8&list=WL&index=4&t=0s (Access date: 15.04.2020). ¹⁸ Hina Walajahi, David R. Wilson, and Sara Chandros Hull, "Constructing identities: the implications of DTC ancestry testing for tribal communities," *Genetics in Medicine* 21, 1744–1750 (2019).

¹⁷ Kyle | Ancestry Stories | Ancestry. URL:

¹⁹ Adam L. Horowitz, Aliya Saperstein, Jasmine Little, Martin Maiers, and Jill A. Hollenbach, "Consumer (dis-) interest in genetic ancestry testing: the roles of race, immigration, and ancestral certainty", *New Genetics and Society* 38, no. 2 (2019): 165-194.

- Despite abuses genetics researches on the past, why genetics argument gaining popularity among population and used as a new tool on scholar level?
- How do genetics impact modern understandings of Jewishness and what does this tell us about Jewish self-perception and self-understanding?

3. METHODOLOGY

3.1. Theoretical analysis

In order to understand how genetic analysis influences the understanding of Jewishness, I have applied several methodological approaches. Since this thesis considers the relationship between genetics and understanding of Jewishness at different levels, different methods were applied to evaluate and study each level. In order to test how genetic analysis as a new approach made changes in Jewish studies, how this approach forms a new agenda, and creates challenges, I analyzed the main works that address this topic. I considered several aspects that were affected by new genetic research in the field of Jewish studies and the issue of Jewishness in particular. The theoretical analysis allowed me to consider how, with the advent of genetic analysis, the theories of the origin of the Jewish people and their kinship with other groups changed, how the concept of objectivity of belonging to the Jewish group changed, how genetic studies return and revise the criteria for "blood", "race" and "origin" in a modern academic field. The focus is to study how the perception of the blood criterion and ethnicity has changed from the 19th century to the present, how modern genetic analysis improves and complements the field.

3.2. The expert opinion

In order to study the effect of DNA testing on the origin, I have analyzed the research approaches of various DNA companies. For this thesis, I selected 4 main companies: "23andMe", "MyHeritage", "Family Tree DNA", and "Ancestry.com Inc". These companies are the most popular for conducting DNA ancestry testing. However, it is worth noting that these companies have different approaches to grouping and naming haplogroups, so the DNA material of the same person will be displayed differently on all sites. This is especially reflected in the haplogroups of the Jews due to their diversity and historical settlement. Thus, the difference in results can affect the self-perception of the person doing the test. Moreover, the question is, why do all companies make a different grouping of Jewish origin? In order to

understand the mechanisms of the work of these companies, you need to contact experts in recreational genetics. Experts have experience not only with companies and decoding results but also with clients who seek help. Therefore, experts can share information about how the test results were perceived by their clients, how the communication process went, and what difficulties they encountered. In addition to expert assessment, this thesis analyzed the stories of people who used the services of recreational genetics. These stories were obtained from open sources: personal blogs, social networks, forum posts. Moreover, the experts helped me contact two people who agreed to talk about their experience (2 semi-structured interviews via Skype). In the end, it helped to figure out how and why the results of DNA testing have a big influence on the formation of self-perception.

3.3. The limitation of the study

This study has limitations for several reasons. Firstly, there is still no consensus on the actual significance of genes for belonging, origin, alleged "Jewish gene" and others. In the academic community, this issue causes a lot of controversies.²⁰ Therefore, this fact forces us to pay more attention to the debates that arise due to different approaches and assessments of the biological criterion of belonging to an ethnic group, nationality. In addition, there are many opinions and statements about the inconsistency of the use of genetics in the social sciences.²¹ Secondly, DNA analysis is an intimate moment for many people. Therefore, those stories that are freely available are not exclusively representative. Unfortunately, for this study, I did not have the opportunity to search for interviewees who could personally tell about their experience in conducting DNA testing. However, I am sure that this project can be implemented later. Thus, the analysis of free access stories was carried out, considering the nature, place, and context of the publication of the material. Thirdly, it is worth noting that the motivation of

²⁰ Rogers Brubaker, Grounds for Difference (Cambridge: Harvard University Press, 2017).

²¹ Genetics Will Revolutionize Social Science. URL: <u>https://www.wsj.com/articles/genetics-will-revolutionize-social-science-11580169106</u> (Access date: 13.04.2020).

people who do genetic analysis is different in each case. And those people who decide to do DNA testing are often ready for a certain result.²² Their reaction and their experience can be programmed and expected, which complicates the process of studying the effect of DNA testing on self-perception.

²² Recreational ancestry DNA testing may reveal more than consumers bargained for. URL: <u>https://theconversation.com/recreational-ancestry-dna-testing-may-reveal-more-than-consumers-bargained-for-93836</u> (Access date: 13.04.2020).

4. JEWISH GENES: HOW GENETIC EVIDENCE IS USED IN CURRENT DEBATES ON UNDERSTANDINGS OF JEWISH PEOPLEHOOD AND JEWISHNESS

The question of who is a Jew has changed over the centuries, but has not disappeared and has not lost its relevance. For many centuries, there was no full consensus on the definition of Jewishness. It is widely believed that the term "Jew" was identical to the understanding of "the person of the Jewish faith" (any person born of a Jewish mother or converted to Judaism was considered a Jew). This simplified understanding was complicated by some historical events and religious laws that raised questions and disagreements. There is widespread debate about whether the Jewish Christian convert is Jewish. According to Halacha, a Jew remains a Jew, but according to canon law, baptized Jews are Christians. In the last two hundred years, the development of social sciences and changes in political regimes, the emergence of new theories, and approaches have influenced the fact that the question arose of separating Jewishness as different forms of social, ethnic, racial groups. The genetic approach introduces even more questions into the understanding and definition of Jewishness, so it is necessary to consider the various approaches and understandings in more detail.

This part of the thesis describes in detail how a new genetic argument tests old understandings, theories, and also creates new ones. The main focus is to look at how new genetic studies confirm and destroy the myths of Jewish origin that have been collected over the centuries.

4.1. The Khazar myth: how genetics evidences change the knowledge about Jews, Jewishness

As mentioned earlier, genetic research, new discoveries force us to turn to old myths and theories. Some myths are confirmed, others are destroyed, thereby genetic arguments introduce a new agenda in Jewish studies, history, and other social sciences. Speaking about this phenomenon, the first thing that is worth attention is the theory about the origin of the Khazars, their religion, and culture. "Khazar myth" is a theory that claims that Ashkenazi Jews are descendants of the Khazars, a multinational conglomerate of Turkic peoples. The hypothesis has a small empirical base and relies only on some medieval sources. This hypothesis has a difficult history in the scientific community. Some sources claim that the Ukrainian writer Isaac Ber Levinson was the first to announce the connection between Ashkenazi Jews and the Khazars.²³ Levinson claimed that the tradition of their ancestors was that Ashkenazi Jews previously spoke Russian before moving to Yiddish. However, the hypothesis that the Khazar population was converted to Judaism, and then later formed the bulk of the Ashkenazi Jews, was first proposed by Ernest Renan in 1883. At his lecture in Paris, Renan argued that a change of religion plays a significant role in shaping the Jewish people: "The change of Khazar religion is of great importance in the issue of the origin of those Jews who live in countries along the Danube and in southern Russia. These regions have a large Jewish population, which in all likelihood has nothing or almost nothing of what, from the point of view of anthropology, we can call 'Jewish' ".²⁴ This hypothesis has long found supporters and critics. "Khazar myth" has gained the attention of a wider audience after the publication of Arthur Koestler.²⁵ Arthur Koestler found the original answer to the ideology of anti-Semitism. In his opinion, the fall of the Khazar Khaganate gave rise to several waves of migration, which constituted the main core of the Judaic population of Eastern Europe. Since ethnic migrants from Khazaria were not Semites, anti-Semitism is also untenable.²⁶ Subsequently, the theory was revised and revised by many scientists (Roland Burrage Dixon, Samuel Krauss, Abraham Polak). The hypothesis acquired more practical significance after the Second World War when the question arose of

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²³ Shlomo Sand, *The Invention of the Jewish People* (New York: Verso, 2010).

²⁴ Ernest Renan, and Shlomo Sand, On the Nation and the Jewish People (New York: Verso, 2010).

²⁵ Arthur Koestler, The Thirteenth Tribe: The Khazar Empire and Its Heritage (New York: Random House,

^{1976).} ²⁶ Ibid.

creating the state of Israel. British and Arab politicians (John Hope Simpson, Edward Spears, Jamal al-Husayni, Fares al-Khoury) appealed to the Khazar myth as an anti-Zionist argument.²⁷

The development of population genetics and DNA research has led to many genetic studies in Jewish and other human populations around the world. According to Martin Richards, current genetic studies, including his own research, refute the Khazar myth.²⁸ The claim that Ashkenazi Jews as a whole originates from the Khazars is widely criticized since there is no direct evidence to support it. In genetic studies, options are considered that the Ashkenazi male lineage originates from the ancient population of the Middle East and that they share this paternal lineage with the Sephardic Jewish population. A group of scientists from the University of Huddersfield stated that the Khazar origin of Ashkenazi Jews is only a myth.²⁹ In 2000, the British writer and journalist Nicholas Wade analyzed data on the Y chromosome and stated that even though the Jewish communities were able to maintain their biological identity separately from the country of residence, the Khazar myth has no biological, genetic evidence.³⁰

However, even on the same results of a genetic analysis of the origin of Ashkenazi Jews, opposite theories can be deduced. Eran Elhaik argues that genetic analysis rather strengthens the hypothesis of Khazar origin.³¹ His main argument is based on the fact that European Jews have a Caucasian group of chromosomes. The population of the Caucasus (Armenians, Georgians, and Azerbaijani Jews) remained a relatively isolated group in the region, and they did not migrate until the fall of Khazaria. These results indicate the common origin of European

²⁸ Marta D. Costa, Joana B. Pereira, Maria Pala, Verónica Fernandes, Anna Olivieri, Alessandro Achilli, Ugo A. Perego, Sergei Rychkov, Oksana Naumova, Jiři Hatina, Scott R. Woodward, Ken Khong Eng, Vincent Macaulay, Martin Carr, Pedro Soares, Luísa Pereira & Martin B. Richards, "A substantial prehistoric European ancestry amongst Ashkenazi maternal lineages," *Nature Communications* 4, no. 2543 (2013): 1-10.
²⁹ Ibid.

³⁰ Geneticists Report Finding Central Asian Link to Levites. URL: <u>https://www.nytimes.com/2003/09/27/world/geneticists-report-finding-central-asian-link-to-levites.html</u> (Access date: 06.05.2020).

²⁷ Casif Erez, *Why Was the State of Israel "Really" Established?* (Cambridge: Cambridge Scholars Publishing, 2013).

³¹ Eran Elhaik, "The Missing Link of Jewish European Ancestry: Contrasting the Rhineland and the Khazarian Hypotheses," *Genome Biology and Evolution* 5, no. 1 (January 2013): 61-74.

Jews and the population of the Caucasus (who were part of Khazaria).³² In 2016, Das, Pirooznia, Wexler, and Elhaik claimed that Yiddish came from areas located near four villages in eastern Turkey along the Silk Road, and not from German lands, as is commonly believed.³³ However, not everyone shares this approach to the analysis of genetic tests and historical theories. Historian Bernard Spolsky claims that despite new evidence supporting the Khazar origin of Ashkenazim, the whole issue of genetic evidence remains vague and controversial.³⁴ Elhaik's research has been very controversial. His study was particularly criticized for the free interpretation of the Caucasian genes of Ashkenazi Jews. So, according to the generally accepted point of view, Azerbaijani and mountain Jews descended from Persian Jews, which has nothing to do with the Khazars. Markus Feldman, director of the Stanford University Morrison Institute for Population and Resource Research, believes that the results of the genetic analysis that have been made over the past 15 years allow us to make only one correct conclusion that Ashkenazi Jews are of Middle Eastern origin.³⁵ Studies by Das, Pirooznia, Elhaik, and Wexler were challenged by Sergio Della Pergola, who criticized the methodology and selective removal of populations that could refute the findings.³⁶ Thus, we see that the consensus in the field of genetic research is that the Jewish population of the world (including Ashkenazim) share a significant genetic lineage descended from a common ancient Middle Eastern population. This means that Ashkenazi Jews are not of Khazar origin.

The Khazar myth is not the only point in the genetic analysis of Jews. Recently, a greater emphasis on modern research has been directed towards studying the kinship between different

³² Danielle Venton, "Highlight: Out of Khazaria - Evidence for "Jewish Genome" Lacking," *Genome Biology* and Evolution 5, no. 1 (January 2013): 75-76.

³³ Ranajit Das, Paul Wexler, Mehdi Pirooznia, and Eran Elhaik, "The Origins of Ashkenaz, Ashkenazic Jews, and Yiddish," *Frontiers in Genetics* 8, no. 87 (June, 2017): 1-8.

³⁴ Bernard Spolsky, *The Languages of the Jews: A Sociolinguistic History* (Cambridge: Cambridge University Press, 2014).

³⁵ Christine Kenneally, *The Invisible History of the Human Race: How DNA and History Shape Our Identities and Our Futures* (London: Penguin, 2014).

³⁶ Almut Nebel, Dvora Filon, Bernd Brinkmann, Partha P.Majumder, Marina Faerman, and Ariella Oppenheim, "The Y Chromosome Pool of Jews as Part of the Genetic Landscape of the Middle East," *The American Journal of Human Genetics* 69, no. 5 (November 2001): 1095-1112.

groups of Jews around the world and comparing the results with historical explanations. Is there a "Jewish" gene? No. Jews and all other people are 99.9% identical, and science does not know a single characteristic gene that would be only among Jews and would not manifest itself in other ethnic groups. But representatives of Jewish communities around the world do have similarities, although some of them are common to neighbor nations. This similarity has helped scientists trace the origins of the Jewish peoplehood. An analysis of the mutations that occurred in some Jewish communities of Ashkenazim, Sephardim, and others helped to understand not only how Jewish groups migrated, but also how this compares with generally accepted historical and religious theories. Findings from a scientific paper published in 2010 by geneticist Harry Ostrer of the Albert Einstein College of Medicine in New York suggest that Jewish communities around the world have a common "genetic thread".³⁷ Genetic analysis of seven Jewish groups (Iranian, Iraqi, Syrian, Italian, Turkish, Greek Jews, and Ashkenazim) revealed the existence of two clusters into which a single people split about 2500 years ago: Jews of Europe, Syria, and Middle Eastern Iraqi and Iranian Jews.

In 2010, two articles were published at once about the kinship between different subgroups of Jews, which for a long time remained a hotly debated topic for historians, anthropologists, and biologists.^{38, 39}A breakthrough happened both in the research method and in the results. For the first time, the full genomes of representatives of well-known subgroups of Jews have investigated: Ashkenazim of Europe and the USA, Sephardim Greece, Turkey and Syria, Mizrahi Jews of Iran and Iraq, as well as Ethiopian and Indian Jews. The researchers

 ³⁷ Harry Ostrer, *Legacy: A Genetic History of the Jewish People* (Oxford: Oxford University Press, 2012).
 ³⁸ Gil Atzmon, Li Hao, Itsik Pe'er, Christopher Velez, Alexander Pearlman, Pier Francesco Palamara, Bernice Morrow, Eitan Friedman, Carole Oddoux, Edward Burns, Harry Ostrer, "Abraham's Children in the Genome Era: Major Jewish Diaspora Populations Comprise Distinct Genetic Clusters with Shared Middle Eastern Ancestry," *American Journal of Human Genetics* 86, no. 6 (June 2010): 850-859.

³⁹ Doron M. Behar, Bayazit Yunusbayev, Mait Metspalu, Ene Metspalu, Saharon Rosset, Jüri Parik, Siiri Rootsi, Gyaneshwer Chaubey, Ildus Kutuev, Guennady Yudkovsky, Elza K. Khusnutdinova, Oleg Balanovsky, Ornella Semino, Luisa Pereira, David Comas, David Gurwitz, Batsheva Bonne-Tamir, Tudor Parfitt, Michael F. Hammer, Karl Skorecki, and Richard Villems, "The genome-wide structure of the Jewish people," *Nature* 466 (June 2010): 238-242.

compared the similarities and differences in the sequences of the genetic code, and how they discovered many details that were unknown or were the subject of controversy. The study of complete genomes refutes all theories and myths that were described earlier in this thesis (Khazar myth and the work by Shlomo Sand). These studies tell us a detailed history of the resettlement of Jews and their mixing with different peoples.

Since for many people Jews are represented as a single homogeneous ethnic group, it is worth noting that there are many different groups of Jews who are isolated even in genetic and geographical terms. Within each subgroup, kinship was very high (on average, like relatives in the fourth or fifth generation). Mizrahi Jews (residents of Iran and Iraq), studies have shown, separated from a single Jewish trunk a long time ago, about 2500 years ago. This is very logical: historians know that then a lot of Jews found themselves in Babylonian captivity. The ancestors of other Jews around the time of Christ settled in southern Europe according to the authors of the study.⁴⁰ Such conclusions based on genetic analysis are confirmed by historical facts since before the Judean war the process of resettlement was slow, and after the expulsion of Jews from Palestine, it began to occur in an avalanche-like manner. In Southern Europe, as new studies have established, they received about 30% of the admixture of genes of local peoples: Italians, Sardinians, and French. This information also has a historical explanation, because in that era proselytism was the normal practice for Jews (up to 10% of the inhabitants of the Roman Empire converted to Judaism).

However, both studies contain a large gap, because the next stage in the description and analysis of genetic analysis data relates to the Middle Ages. Genetics and historians describe this period as a moment when we can observe Europe two clearly defined groups of Jews, whose relationship and the process of formation are not known. The first group is the

⁴⁰ Gil Atzmon, Li Hao, Itsik Pe'er, Christopher Velez, Alexander Pearlman, Pier Francesco Palamara, Bernice Morrow, Eitan Friedman, Carole Oddoux, Edward Burns, Harry Ostrer, "Abraham's Children in the Genome Era: Major Jewish Diaspora Populations Comprise Distinct Genetic Clusters with Shared Middle Eastern Ancestry," *American Journal of Human Genetics* 86, no. 6 (June 2010): 850-859.

Sephardim, about whom we only know that they lived in Spain, were expelled from there in 1492, and settled in France, Italy, Greece, Turkey, and Syria. The second group is fair-faced, fair-skinned (and often light-eyed), and more prone to Ashkenazim hereditary diseases. They appeared on the Rhine in the 8th century BC. but it was not known where. Ashkenazim lived in the territory of modern Germany and later spread throughout Eastern European region. Almost all Ashkenazim living in Germany and in the territories it occupied during World War II were destroyed in the Holocaust. Many of the survivors ended up in Israel and the United States, however, the migration of Ashkenazi Jews to Israel, North America, South America, South Africa started long before the Holocaust. Even settling nearby Sephardim and Ashkenazim rarely enter into mixed marriages. They have differences in the pronunciation of words in the language of prayer (Hebrew) and in religious practices.

One of the most discussed results of the study in the media was the fact that Ashkenazim were genetically much closer to the Sephardim than was thought. The two groups dispersed relatively late. In both, Middle Eastern genes dominate, about 70% of them. In both groups, there is an admixture of the genes of the French, Italians, and Sardinians (20-30%, which were inherited even before the separation of Jews into Sephardim and Ashkenazim. However, the question of when and how this separation occurred was left out of the focus of 2010 research. Later, Harry Ostrer tried to fill the gap and gave an explanation. In his view, the Ashkenazim and Sephardim broke up about 60 generations ago, that is, about 1200 years ago.⁴¹ Ashkenazim are the descendants of South European Jews who moved down the Rhine. Over the next centuries, Ashkenazi Jews received a small admixture genetic inheritance of North European people (according to new data, this is about 7.5%), but the authors consider this a secondary stratification, not talking in any way about their origin from Northern Europeans.⁴²

⁴¹ Harry Ostrer, *Legacy: A Genetic History of the Jewish People* (Oxford: Oxford University Press, 2012).

⁴² Ibid.

A study of Ashkenazi genomes confirmed the previously established fact that about half of today's Ashkenazim comes from just four women living in Europe 1000 years ago.⁴³ According to genomic calculations, in the last centuries, Ashkenazim quickly gained in numbers: by the 15th century, there were already no less than 50 thousand, by the beginning of the 19th century - 5 million (these calculations are valuable because historians do not have comprehensive censuses for these periods). Having studied the history of kinship between different groups of Jews, one can judge their neighbors by the ethnographic landscape. As was commonly believed, the closest "relatives" of the Eastern Jews are Bedouins, Druze, Palestinians. Although the genomes of Indian and Ethiopian Jews, as it turned out, carry only residual traces of their Middle Eastern origin, since these branches dissolved in the local population, and their Jewishness is not an ethnic, but rather a cultural trait.

Most studies so far have focused only on the study of Ashkenazi Jews, although Jews in Africa and the Middle East also have many questions in determining race/ethnicity and kinship with Sephardim, Ashkenazim. As mentioned earlier, genetic studies have shown that Palestinians, Bedouins, Lebanese Jews, and other Levantines are genetically close to Sephardim and Ashkenazim. However, there is still no more complete data on other groups of Jews, despite the fact that such a request exists to establish historical and political laws. Studies in 2010 generally confirmed historical science, according to which Jews began to move to North Africa from the Middle East in the era of antiquity. The immigrants entered into marriages with the indigenous local population, which in the pre-Islamic era could freely pass into Judaism. As a result, several stable populations arose on the territory of North Africa, which remained closed for almost two millennia.

⁴³ Doron M. Behar, Ene Metspalu, Toomas Kivisild, Alessandro Achilli, Yarin Hadid, Shay Tzur, Luisa Pereira, Antonio Amorim, Lluís Quintana-Murci, Kari Majamaa, Corinna Herrnstadt, Neil Howell, Oleg Balanovsky, Ildus Kutuev, Andrey Pshenichnov, David Gurwitz, Batsheva Bonne-Tamir, Antonio Torroni, and Richard Villems, "The Matrilineal Ancestry of Ashkenazi Jewry: Portrait of a Recent Founder Events," *American Journal of Human Genetics* 78, no. 3 (March 2006): 487-497.

Professor Harry Ostrer, who led the research group, believes that 2010 studies may show that some groups of Jews have a common genetic origin. Thus, genetic studies confirm this concept and indicate that the Jewish people are connected by a common genetic history.

As we can see, genetic research contributes to the destruction of myths, the development of the issue of Jewish origin, provided that we accept this methodology and take into account all the shortcomings that exist in this approach. Moreover, this allows you to take a fresh look at the different groups of Jews and their connections. However, how does a genetic argument affect the redefinition of different understandings of Jewishness? Does genetics create an approach to understanding Jewishness? Are there any contradictions when accepting the genetic argument? And also, how are the results of genetic research applied in practice? First of all, it is worth repeating once again that genetic studies have confirmed the kinship and unity of origin of the two largest Jewish groups: Ashkenazim and Sephardim. Such results were made on the basis of analysis and comparison of DNA materials. That is, genetics managed to find a genome that is common to Jews of different groups. This does not mean that there is a "Jewish gene", which is often written by various media. However, this means that it is now possible to quickly and more accurately determine the origin. Although the question of whether we can equate "origin" with "self-perception" or "objective identity" remains open to this day. Moreover, within the framework of this thesis, one more question arises: how legitimate is it to equate Jewish origin with Jewishness?

So, based on the results of genetic research, we can conclude that this does not destroy the understanding of Jewishness. Genetics confirmed the common origin, the unity of the Jews, and the ancestry, which were mentioned in the framework of understanding of Jewishness as religious affiliation. The understanding of Jewishness as a race lost its meaning at the moment when the term "race" itself ceased to play an important role in research, politics, and public consciousness. Therefore, it is now difficult to say that the genetic argument made us reconsider, accept, or refuse this approach to understanding. Despite this, we can mention that over the past few years there have been several cases where racial science tried to return to the popular science field. Basically, the arguments of racial theory remained the same, but this time they relied on the "genetic aspect".⁴⁴ Moreover, as mentioned in previous chapters, genetic research also brings the concept of the race back into everyday language unintentionally. Thus, we can say that the connection between genetics and racial theory exists at a certain level. Despite this, we cannot indicate the direct influence of genetics on the racial understanding of Jewishness. Regarding the understanding of Jewishness as ethnicity/nationality, at first glance, from the point of view of the theory of genetics, they did not contradict this approach but only pointed to the unity and connection between various Jewish ethical/national groups. However, in practice, some changes can be noticed.

4.2. Groups of Jews who remain outside the scope of mainstream genetic research

Over the centuries, numerous groups of Jews have developed in the Jewish diaspora, characterized by cultural and linguistic features. Many of them speak or spoke special Jewish dialects and languages. Geographic and cultural divisions often make us forget about their origin and why all these diverse groups are united by a common name. In Europe, North America, and the territory of the countries of the former Soviet Union, there are about 20-25 different groups of Jews. Often these small groups are ignored by researchers. The following chapter describes the case when Bukharan Jews are not recognized as Jews in many private genetic laboratories due to the lack of samples of genetic material and special groups. However, in addition to small groups of Jews in the Northern Hemisphere, the diversity of Jews in Africa, India, and the Middle East has also been little studied. Jews originating from North Africa, Near East, and Central Asia are called by the general term "Mizrahim". This term brings together

⁴⁴ The unwelcome revival of 'race science'. URL: <u>https://www.theguardian.com/news/2018/mar/02/the-unwelcome-revival-of-race-science</u> (Access date: 08.05.2020).

about 30 different groups that are settled in different parts of the world, speak different languages, and have significant differences in culture and religious practices.

Research on historical genetic analysis by Harry Ostrer and his colleagues, which were described in the previous part of this chapter, focuses mainly on only the two largest Jewish groups: Ashkenazim and Sephardim. The main goal of the research was to trace and prove the common origin of the two groups, which has been called into question for many years. The studies of Ostrer and other geneticists and historians have become a real discovery in the field of genetics and in the field of Jewish Studies. However, we must note that outside the study there were numerous groups of Jews whose kinship and origin still remains not so clear. In this part of the thesis, I look at more modest genetic studies and their results, which relate to other groups of Jews.

In 2016, a study by a group of scientists was published that examined the origin and family ties of Jews in India.⁴⁵ The Jews of India are not a single homogeneous group, but they consist of several communities that differ culturally, linguistically, historically, religiously, and socially and economically. Several main groups can be distinguished: Cochin Jews (Malabar Jews), Bene Israel (Marath Jews), Baghdad Jews, Bene Menashe, Bene Efraim (Telugu Jews), and Ashkenazi (a small number immigrated to India from Europe after World War I, but mainly during the years of World War II). None of the Jewish groups in India has developed their own Jewish language or at least a markedly different dialect. Only the Baghdad Jews used the Jewish alphabet for their Jewish-Arabic dialect. Neither Cochin Jews nor Bene Israel used Hebrew writing. A group of geneticists from Tel Aviv University, Cornell University, and Albert Einstein College of Medicine proved that the Bene Israel community of Indian Jews living in

⁴⁵ Yedael Y. Waldman, Arjun Biddanda, Natalie R. Davidson, Paul Billing-Ross, Maya Dubrovsky, Christopher L. Campbell, Carole Oddoux, Eitan Friedman, Gil Atzmon, Eran Halperin, Harry Ostrer, and Alon Keinan, "The Genetics of Bene Israel from India Reveals Both Substantial Jewish and Indian Ancestry," *PLoS One* 11, no. 3 (2016).

the vicinity of Mumbai really shares roots with Jews.⁴⁶ Scientists studied the genomes of 18 representatives of Bene Israel, comparing them with the genomes of 486 people from Jewish, Indian, and Pakistani groups. Researchers have found that although Bene Israel genetically resembles the local Indian population, they are a clearly separate and unique group of people, combining both Indian and Jewish ancestry. In Bene Israel, they believe that their community appeared in India in the II century BC. Nothing was known about them until the 18th century when Cochin Jews and Christian missionaries came into contact with the Indians who claimed their Jewish origin.^{47, 48} The author of this study, Yedael Y. Waldman, claims that apart from myth stories and speculation, there was no objective fact that the Bene Israel community could claim Jewish origin.⁴⁹ Thus, genetic analysis has proven the legends that have existed for many centuries. Moreover, this study fills the gap of previous studies that used the same analysis method but were focused on other larger groups.

In addition to the Jews of India, there are two more groups whose genetic analysis has not yet been fully produced and studied, and this is a promising study. One of these groups is Ethiopian Jews (Falasha). Historians still argue about the exact origin of the Jewish community of Ethiopia but agree that it developed mainly in isolation until the 20th century.⁵⁰ There are two popular scientific theories of the origin of the Jews of Ethiopia. The first theory says that they are really descendants of ancient Jewish immigrants, and according to the second theory,

⁴⁹ Geneticists trace Jewish roots of Bene Israel community in India. URL: <u>https://www.upi.com/Science_News/2016/05/10/Geneticists-trace-Jewish-roots-of-Bene-Israel-community-in-India/7311462910171/</u> (Access date: 28.05.2020).

⁴⁶ Yedael Y. Waldman, Arjun Biddanda, Natalie R. Davidson, Paul Billing-Ross, Maya Dubrovsky, Christopher L. Campbell, Carole Oddoux, Eitan Friedman, Gil Atzmon, Eran Halperin, Harry Ostrer, and Alon Keinan, "The Genetics of Bene Israel from India Reveals Both Substantial Jewish and Indian Ancestry," *PLoS One* 11, no. 3 (2016).

⁴⁷ Tudor Parfitt, Yulia Egorova, "Genetics, history, and identity: the case of the Bene Israel and the Lemba," *Cult Med Psychiatry* 29, no.2 (June, 2005): 193–224.

⁴⁸ Yedael Y. Waldman, Arjun Biddanda, Maya Dubrovsky, Christopher L. Campbell, Carole Oddoux, Eitan Friedman, Gil Atzmon, Eran Halperin, Harry Ostrer, and Alon Keinan, "The genetic history of Cochin Jews from India," *Human Genetics* 135, no. 10 (2016): 1127-1143.

⁵⁰ David Kessler, *The Falashas: A Short History of the Ethiopian Jews* (London: Psychology Press, 1996).

Ethiopian Jews are ethnically not Jews at all, but the indigenous people of northern Ethiopia.⁵¹ The debate has been going on for many years and still continues even after genetic studies in 2012 showed that Ethiopian Jews are genetically closest to native Ethiopians, but they still have very ancient Jewish ancestors.⁵² Thus, Ethiopian Jews form a special genetic cluster, which still remains not fully understood.

In addition to these groups, there is one more that has a rather complicated history, which makes genetic analysis a more relevant and promising research tool. Such a group is the Marranos of Portugal and Spain. The Christian population of Spain and Portugal called the Jews who converted to Christianity and their descendants (regardless of the degree of voluntary conversion) Marranos. Often the Marranos and their descendants secretly continued to remain faithful to Judaism (in whole or in part). Over the next few centuries, during the colonization by Spain and Portugal of South America and the Caribbean islands, many Marranos settled there. Some of them joined the Sephardic Jews who took refuge in the Dutch colonies. However, the bulk of the Marranos dissolved in the Hispanic population. Thus, after several centuries, it became difficult and almost impossible in many cases to trace the history of a particular family, its pedigree, and learn with absolute certainty about the presence or absence of Jewish origin. In this case, genetic analysis may be the most accurate and affordable tool for finding an answer after many centuries.

In 2008, a team of Spanish, Portuguese, Israeli, British, and French researchers led by Mark Jobling of the University of Leicester, England, conducted a study using genetic comparative analysis. Genetics tried to measure the proportion of Sephardic and Muslims in the gene pool of the inhabitants of the Iberian Peninsula, using data on the Y-chromosomes of the latter. Jobling and his colleagues collected DNA samples from 1140 men living in all major

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⁵¹ Avshalom Zoossmann-Diskin, Aharon Ticher, Isaac Hakim, Z. Goldwitch, A. Rubinstein, and B. Bonne-

Tamir, "Genetic Affinities of Ethiopian Jews," *Israel journal of medical sciences* 27, no.5 (June, 1991): 245-251. ⁵² Ibid.

regions of Spain and Portugal and tested their Y chromosomes for the presence of three dozen genetic markers.⁵³ Scientists compared the genetic material among the Pyrenees to similar data for Sephardic and Moors. The research team created an "artificial Sephardic" from the genetic data of nearly two hundred residents of Mediterranean cities, who identify themselves as descendants of the Jews. As a result of comparative genetic analysis, modern Portuguese and Spaniards are only two-thirds of the descendants of old Christians. The ancestors of the inhabitants of the Iberian Peninsula are 19.8% Jewish and 10.6% Muslim.⁵⁴ It is also worth noting that the percentage of origin is very different from one region to another. For example, in Asturias or in the south of Portugal, from 40% to 50% of the population have Jewish roots, but 90% of the inhabitants of Catalonia or Castile have no roots other than Christian roots, which has a historical justification. This is the largest genetic study of the inhabitants of the Iberian Peninsula of this kind to date, but we cannot take these results too literally. Firstly, the choice of the "indigenous" population raises some questions: the scientists wrote off the genetic portrait of the open-minded Pyrenees from the inhabitants of the Basque Country, not taking into account mixed marriages, migration flows, and gene mutations. Secondly, the averaged and artificially created Sephardic model is doubtful. Thirdly, this study does not answer the question of when exactly the different components were mixed in the genetic composition of modern Spaniards and Portuguese. We cannot directly identify the genetic origin and religious or cultural affiliation. Thus, this work is outdated and too generalizing for modern genetic research. At the same time, at the moment, there are no similar studies of the genetic heritage of Marranos.

 ⁵³ Susan M. Adams, Elena Bosch, Patricia L. Balaresque, Doron M. Behar, Francesc Calafell, and Mark A. Jobling, "The Genetic Legacy of Religious Diversity and Intolerance: Paternal Lineages of Christians, Jews, and Muslims in the Iberian Peninsula," *The American Journal of Human Genetics* 83, no. 6 (December, 2008): 725-736.
 ⁵⁴ Ibid.

Despite the fact that at the academic level, the genetic study of Marranos is not popular, it gave impetus to such private studies at the individual family level. Due to the growing popularity of social networks and online DNA testing services, everyone can find out important genetic information, then go to Facebook forums like "Tracing the Tribe" and meet their kind there, looking for connections with the past. Having discovered their genetic connection with the Spanish Jewry of the 15th century, these people behave differently. Some pass the giyur and join one of the movements of Judaism, while others begin to consider themselves Jews, without feeling the need to obtain confirmation of their Jewishness from a rabbinical court. And others continue to be adepts of a different faith or atheists, but the genealogical discovery inspires them to study Judaism or visit Israel. At the moment, there are organizations ("Reconectar") in Spain and Portugal that help Bene Anusim who want to return to Judaism. Such communities conduct informational work for those who have recently become interested in the history of their family. In addition, members of organizations try to find, digitize, and make publicly available inquisition documents and other sources that can help in the search.

Having studied various genetic studies on issues of Jewish origin, we can say that in general this area still remains promising due to the diversity and uniqueness of various Jewish groups. However, gaps in this topic at the academic level have certain consequences. Little knowledge (or its complete absence) of individual Jewish groups leads to the fact that private commercial genetic companies do not have an idea of the numerous small Jewish groups. Such commercial laboratories often do not have the genetic samples of many Jewish groups and, accordingly, they do not include them in the process of grouping and recognition of genomes. The next chapter describes how the unknownness of a Jewish group in a DNA base can influence test results and their perceptions by people.

4.3.DNA test as an entrance ticket to Jewry: how genetics is used in modern Israel

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Israeli Minister of Interior Aryeh Deri issued a statement asking to conduct DNA testing for returnees from the countries of the former USSR to verify their Jewishness.⁵⁵ In addition, Israeli Chief Rabbi Ashkenazi David Lau admitted that part of the newcomers from the former Soviet Union was forced to undergo DNA testing in order to be able to obtain a marriage license.⁵⁶ Existing genetic technology allows using a specific genetic marker to trace the origin of four mothers who migrated from the Middle East to Europe about a thousand years ago, which can demonstrate a halachic origin. This procedure was not and is not mandatory, but some people try to use it when they want to marry through a rabbinate and when they do not have enough proof of their Jewishness. Israeli politicians and part of society believe that in recent years, too many immigrants from Russia and other republics of the former USSR have arrived in the country and most of them are not Halachic Jews. Such statements received a lot of criticism both from the Russian-speaking community and from Israeli politicians and even representatives of the religious community that Deri himself had to abandon them. However, the "DNA test for Jewishness" is not a myth at all, and recently it has become increasingly used in Israel. The discovery, originally designed to facilitate the process of ethnic identity, unexpectedly became a tool for various speculations. After the head of the "Eretz Hemda" Institute for Jewish Studies, Rabbi Yosef Carmel, in 2017, made a statement that almost half of Ashkenazi Jews can trace their descent from four, which may be evidence of their halachic origin.57

A year ago, the Russian-language media in Israel were full of the story of an elderly repatriate from the former Soviet Union. Tatyana Bulagina moved to Israel in the 1990s, learned

⁵⁵ Deri rapped as racist for tirade, threats against Russian-speaking immigrants. URL: <u>https://www.timesofisrael.com/deri-rapped-as-racist-for-tirade-over-immigrants-from-soviet-union/</u> (Access date: 08.05.2020).

⁵⁶ Israel's Ashkenazi rabbinate admits to conducting DNA testing before marriage. URL: <u>https://www.thejc.com/news/israel/israel-s-ashkenazi-rabbinate-admits-to-conducting-dna-testing-before-marriage-1.481900</u> (Access date: 08.05.2020).

⁵⁷ Can 'Jewishness' be proven with a simple saliva test? URL: <u>https://www.ynetnews.com/articles/0,7340,L-</u> <u>4968443,00.html</u> (Access date: 08.05.2020).

the language, and began to work as a doctor. Two years ago, Tatyana began the fight against the Rabbinical court, as they refused to recognize her as Jewish despite the available documents. Bulagina wants the state to allow her to be buried according to the Jewish ritual in the Jewish cemetery: "I am not going to get married or get anything from the state. I just want to receive confirmation from a rabbinical court that I am Jewish to be buried in a Jewish cemetery." ⁵⁸ The documents from the archives, which Tatyana received with great difficulty, did not satisfy the rabbis, and she was ready to give up and quit this venture, but suddenly she heard about a genetic test that she could pass to prove her Jewishness: "My test confirmed that I am 99% Jewish, and now I have to get a certificate stating that I am recognized as Jewish." ⁵⁹ This became possible quite recently after the rabbinical courts began to accept the results of the DNA test analysis, which shows the genetics of the pedigree on the maternal line of a person, which can serve as evidence of Jewishness. During this period, dozens of Israelis whose Jewishness was called into question passed such tests, and two-thirds of them helped. But the genetic examination is only indirect evidence for those who are in the process of "checking Jewishness" in the rabbinical courts. DNA testing alone is not sufficient evidence of Jewishness. The acceptance by the rabbinical courts of genetic tests as an indirect confirmation of Jewishness is a liberal and progressive step. But unfortunately, some rabbinical courts still do not accept the results of DNA tests as evidence. There is an ongoing discussion in Israeli society about why Halacha, that defines Jewish motherhood, can rely on mitochondrial DNA tests.

One of the main defenders of genetic testing in Israel is the SIMANIM Institute, founded by Rabbi Ze'ev Litke. This organization helps people who need to prove their Jewishness using a DNA test. The successes of this organization are noticeable because in Israel they are increasingly understanding the importance of the DNA test for testing Jews, which are tested

⁵⁹ Ibid.

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⁵⁸ DNK-test stanet vkhodnym biletom v yevreystvo? [Will a DNA test be an entry ticket to Jewry?]. URL: <u>https://detaly.co.il/dnk-test-stanet-vhodnym-biletom-v-evrejstvo/</u> (Access date: 27.05.2020).

by more than 4,000 Israelis every year. Most of these checks begin when the descendants of returnees from the former USSR come to the rabbis to register the marriage. Then they understand that they must prove their Jewishness. According to a study conducted by the Israel Institute of Democracy in 2010–2017, between 4,000 and 4,800 Jewish verification cases were opened in Israel each year.⁶⁰

Often, the process of checking and proving Jewishness can have a big impact on the lives of those who need this test. If it turns out that the person who passed the Jewish test is not a Jew, the rabbinical court immediately informs all his close relatives that they are not Jews, and the court lists them as those who cannot marry the rabbinate. This is a severe shock for the whole family. This is the story of a young woman who turned to one of the rabbinical courts with a request for marriage, where they demanded that she pass a Jewish test. The rabbinical court ruled that the applicant was not Jewish, as he doubted the documents the woman had submitted for verification.⁶¹ Letters of forced verification of their origin were sent to all blood relatives of the woman, which caused a lot of indignation and indignation.⁶² All verification procedures and official letters can be seen as an interference with privacy. We can say that genetic testing could become a simplified and quick form of testing, which would not create so many problems for the state and for citizens.

The problem with genetic testing in Israel is that it is not regulated yet and it is used as a political tool. The lack of Jewish origin in the results of DNA testing does not prove the absence of Jewishness (and the presence also does not prove anything). Therefore, the fact that now a whole campaign has risen in Israel regarding the establishment of Jewishness by genetic analysis, passing checks in the rabbinate is no more than a political game of different parties.

⁶⁰ Rabbinate DNA tests seek Jewishness in the blood, become a bone of contention. URL:

https://www.timesofisrael.com/rabbinate-dna-tests-seek-jewishness-in-the-blood-become-a-bone-of-contention/ (Access date: 27.05.2020).

⁶¹ Ibid.

⁶² Ibid.

This demonstrates that the genetic argument does not change the understanding of Jewishness, the law, but is used for other purposes in political processes. Jewish DNA testing can only be used in rare cases. For example, when relatives do not have documents confirming their Jewishness by mother, father, or grandparents. Then, if there are other relatives with confirmed documents, the analysis may be legitimate, but it will not be the main, but the accompanying additional evidence of Jewishness. Such a test can be used with great caution in the presence of other evidence, but not with the aim of refuting Jewishness. Since such dubious DNA tests for Jewish origin at some point could be used as undeniable evidence of Jewishness, Israel today refuses to accept test results not made in this country and not by court order. It's not possible to do a DNA test for Jewishness without reason in Israel right now.

This chapter discusses how genetic analysis is used in the academic field and in practice. Recent advances in genetics provide opportunities for revising old theories, proving or refuting them. Genetics may claim to create a different approach to understanding Jewishness, however, genetic studies show the origin of Jews and the links between different groups of Jews, but this does not create an absolute method for determining the origin. We see that a genetic analysis of Jewish origin focuses on two main large groups: Sephardim and Ashkenazim, which creates a gap in the study of other Jewish groups and can also lead to a simplification of the whole topic of Jewishness. In addition, the origin or a certain percentage of Jewish origin in the results of DNA tests is not an indicator of Jewishness or who a person is, although, at a practical level in Israel, attempts are being made to use DNA testing for political purposes, which may affect relations between different groups of Jews, between citizens and the state.

The next chapter discusses why, for some people, the origin/ancestry is directly identical to their self-perception. As well as how modern genetic companies influence this process.

5. DNA ANCESTRY TESTS: IS DNA WHAT WE ARE?

Just a couple of years ago, it seemed to us that genetics exists exclusively within the walls of large laboratories and does not concern people's daily lives. But over the past couple of years, everything has changed dramatically. Genetics has ceased to seem something far away and has become available to everyone depending on requests. Science, which talks about what is encoded in our genes and how it affects our lives, has become incredibly popular and indemand outside of scientific and research groups. There is even a separate direction: recreational genetics. This helps to satisfy the interest and various needs of people, although most are entertaining and informative in nature. The law of supply and demand made it possible to create a whole market of recreational genetics with many different companies that collect and process DNA tests for genetic diseases, predisposition to diseases, as well as the origin of ancestors. The desire of people to find out their origin is based on the eternal question "who am I?" Now, companies that conduct DNA tests promise their customers to determine their ethnic and geographical origin with an accuracy of one percent. It is difficult to say who is developing this market more: growing demand from the population or marketing and advertising campaigns of genetic companies. However, we can safely say that in any case, it is now difficult not to pay attention to what place recreational genetics occupies in society, in people's lives and how this changes our self-perception. This chapter discusses how the gene code is interpreted in various companies, how grouping affects the test result and its perception in the Jewish case. Also in this chapter are various cases of recreational genetics, their effect on self-perception, and how genetic experts interpret such processes.

5.1. <u>Research approaches and grouping people in different DNA companies and databases</u>

"Genetics is not mistaken, genetics experts are mistaken, which interpret the results depending on their concepts and worldviews," said Anatole Klyosov, a specialist biochemist.⁶³

⁶³ Anatole A. Klyosov, DNA Genealogy (Irvine: Scientific Research Publishing, 2018).

The variety and abundance of various companies that conduct DNA testing are based primarily on the fact that they have different concepts, and therefore different interpretations. On the question of the origin of the ancestors, the difference in interpretations can play a big role. The general database of the genetic material of representatives of various nationalities, nationalities, ethnicities also affects the final result: the more DNA samples of people are collected around the world, the more accurate the result will be in the future (since with a large number of different DNA samples it is easier to compare and establish links between them). However, the interpretation factor has a greater impact now, since the database is almost identical for all companies, but each company has its own classification and grouping. The question of grouping and classification is of great importance in the framework of the Jewish case, where there is a fundamental difference between the Sephardim from Greece and the Greeks, the Germans, and Ashkenazim from Germany, etc. In order to understand the difference and the principle of grouping and classification in different companies, I examined the sites of the largest and most popular genetic companies (Ancestry, 23andMe, Family Tree DNA and MyHeritage), and also turned to geneticists who have experience in interpreting the results from various companies.

The first thing that should be noted in the differences between all the companies studied is the difference in their scale and location. As mentioned earlier, companies have similar databases, as people from all over the world donate their DNA materials to different companies, and sometimes to several at the same time. However, each company has a different customer base, which affects the DNA database. So, MyHeritage has been repeatedly accused of inflating the percentage of Jewish ancestry in all results compared to other companies. There are some opinions of people who see this as a political reason since the company was founded in Israel. But despite this, the explanation is that due to the geographic location of the company, their database consists of dominant Jewish materials. Accordingly, large international companies with a large customer base, have more accurate or just different results. In addition, genetic experts note that the reference base is of average importance.⁶⁴ In the modern world, it is impossible to determine the "pure" genome of one or another nationality/ethnicity. Therefore, DNA companies use the middle version, which may contain dozens of other genomes and matches. Another point worth noting in the process of obtaining the results of DNA testing is the process of finding matches and similarities in databases using a computer. Genetic researchers have found that there are three principles for the similarity of genes: true heredity (similarity by ancestors), similarity to the whole human (due to genetic traits that are characteristic of the entire human race), and random similarity (resulting from mutations).⁶⁵ Another point worth noting in the process of obtaining the results of DNA testing is the process of finding matches and similarities in databases using a computer. Genetic researchers have found that there are three principles for the similarity (resulting from mutations).⁶⁵ Another point worth noting in the process of obtaining the results of DNA testing is the process of finding matches and similarities in databases using a computer. Genetic researchers have found that there are three principles for the similarity of genes: true heredity (similarity by ancestors), similarity to the whole human (due to genetic traits that are characteristic of the entire human race), and random similarity (resulting from mutations). ⁶⁶ However, many people are quite serious about the results with a small percentage. They begin to look for a logical explanation for the fact that they have a small percentage of "exotic" ancestry.

After the general reasons for the difference in the interpretation of different DNA, companies were considered here, it is worth paying attention to more detailed differences between the largest and most popular companies. 23andMe is the most reliable, according to many people who work with DNA testing. The results obtained on this site can be transferred to any other site of the genetic company, but on the contrary, cannot be done. This creates certain advantages because different sites still show national divisions a little differently. Secondly, if a person's goal is to search for relatives, then it is in his interest to place his data

⁶⁴ Anatole A. Klyosov, DNA Genealogy (Irvine: Scientific Research Publishing, 2018).

⁶⁵ Linda L. McCabe and Edward R.B. McCabe, *DNA: promise and peril* (Berkeley: University of California Press, 2008).

⁶⁶ Dnk. Chto eto, zachem eto [DNA. What is it, why is it] URL:

 $[\]frac{http://nadialipes.info/\% d0\% b4\% d0\% bd\% d0\% ba-\% d1\% 87\% d1\% 82\% d0\% be-\% d1\% 8d\% d1\% 82\% d0\% be-\% d1\% 8d\% d1\% 82\% d0\% be-\% d1\% 8d\% d1\% 82\% d0\% be/$ (Access date: 19.05.2020).

in the maximum number of places in order to have the greatest chance of a positive search result. In addition, since the Jewish case is the focus of this thesis, it is worth clarifying that this company shows the presence or absence of Ashkenazi traces in DNA using better grouping and database. And besides this, 23andMe shows the haplogroups of both parents if you are a man, and only the mother if you are a woman. This information becomes more relevant in the framework of the issue of genetic testing of Soviet Jews in Israel, which was described in the previous chapter.

Another popular company, MyHeritage, has its own social network for searching and communicating with genetic relatives. Nadia Lipes notes that recently MyHeritage does not show small percentages of Ashkenazi ancestry, although a couple of years ago it was exactly the opposite (Myheritage showed them, but 23andMe did not).⁶⁷ Based on this, we can say that changes in recognition and grouping systems occur regularly. Russian DNA companies Genotek and Atlas give a more extended and accurate result for people from Russia, Belarus, and Ukraine, while other companies usually group all East Europeans in one cluster and do not give differences by country. Based on the materials of all genetic companies that are in the public domain, there are no large differences in the method of assessment and grouping. However, it is worth considering and comparing, using a real example, the results of one and the same person to find out how grouping occurs in different companies.

While writing this thesis, I managed to contact a person from Russia (Alexey, 42 years old) who did DNA tests for himself and his family in different companies (23andme, FTDNA, MyHeritage, Genotek and Atlas).⁶⁸ These companies are located in different countries, which affected the results. Alexey did the testing in 2018 because he was interested in knowing the alleged place of origin of his ancestors. MyHeritage was the first site where he reviewed the

⁶⁷ Dnk. Chto eto, zachem eto [DNA. What is it, why is it] URL:

http://nadialipes.info/%d0%b4%d0%bd%d0%ba-%d1%87%d1%82%d0%be-%d1%8d%d1%82%d0%be-%d1%8d%d1%82%d0%be-%d1%8d%d1%82%d0%be/ (Access date: 19.05.2020).

⁶⁸ Respondent 1. Interview: 20.05.2020.

results. This site showing the following data: 51% Eastern Europe, 33% the Baltic States, and 15% other. Alexey got the most matches with representatives from Finland, the USA, Germany, and Sweden. Russia was only in 5th place on this list. This result surprised Alexei, but he later found out that a large number of matches outside of Russia was due to the popularity of DNA testing in these countries and the small amount of data from people in Russia in this company. FTDNA results were close to those from MyHeritage. Alexey has the same percentage of Eastern Europe on both sites, but in the second case, instead of the Baltic, he got Southern Europe with the same percentage. The most reliable result was the result of 23andMe. Moreover, Alexey's results on this site have changed twice due to changes in the mechanisms of grouping and the name of groups of origin. Both times the result was 86% of Eastern Europe, but for the second time, a grouping was added to the regions of Russia, which fully corresponded to the family history that Alexey knows from his parents and grandparents. The results of Russian DNA companies showed 42% of Eastern Europe and 27% of Central Europe. The data of these two companies had a more detailed description of various alleged ethnicities and nationalities. Thus, on a real example, differences in grouping and percentage were revealed. In this case, no major contradictions were found among all the results, although even such small inconsistencies each time raised questions and surprise in Alexei.

We can observe a more interesting situation with Jewish data in different DNA companies. In order to understand this issue, I studied the work of Nadia Lipes. Lipes specializes in searching for documents confirming the presence of Jewish relatives, as well as in interpreting the results of DNA testing in the presence or absence of Jewish roots. According to Lipes, DNA testing is the easiest way to understand if a person has Jewish roots.⁶⁹ Over several years of working with people who seek to find Jewish roots through a genetic approach, Lipes has collected many stories that show the difference in the approaches of DNA companies

⁶⁹ Public lecture in Moscow by Nadia Lipes (30.07.2019).

to the Jewish group. So 23andMe has problems identifying the various variations of Sephardic origin. The mechanisms of grouping and determining the genome often determine the Sephardic origin as Italian, Spanish, Greek, Balkan. It is difficult to say exactly why such a grouping occurs, but presumably, the company's system shows Sephardic people as Italians, Greeks, etc., if the genome is difficult to correlate with the Sephardic majority, which is listed in the company's database. Typically, such results are more accurately determined by MyHeritage, whose Jewish database is much larger and more diverse. Although there are cases where MyHeritage also hides Sephardic roots, disguising them as Ashkenazi. More interesting are the cases when a person was born and raised in a Jewish family, and DNA analysis shows a complete absence of Jewish roots. Nadia Lipes interprets such cases as the case of the substitution of children in the hospital.⁷⁰ However, not all such cases should be interpreted as an error in the hospital or the fact of treason, because there is a special group of Jews whose genetic material remains unknown for all genetic databases. Most Jewish genetic databases are made up of Ashkenazi and Sephardi Jews, while Asian Jews remain unexplored. Bukharan Jews belong to this kind. Bukharan Jews is a subgroup of the Jewish or Jewish diaspora that lived at the time of the expansion of the Russian Empire in Central Asia in the cities of the Kokand Khanate, the Bukhara Emirate and the Khiva Khanate (the territory of modern Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, and Turkmenistan). In the Soviet period, the census took Bukharan Jews into account as a separate group of Jews. All of them had Jewish nationality in the passport. During Perestroika in the USSR, which began in 1985 and after the collapse of the USSR in 1991, most Bukharan Jews settled in North America, Israel, Austria, Germany, and France. Thus, Bukharan Jews now live in different parts of the world, where they continue to observe Jewish traditions or preserve family memory. However, their DNA test results show a lack of Jewish ancestry and the presence of Uzbek or other Asian groups of origin. Moreover,

⁷⁰ Public lecture in Moscow by Nadia Lipes (30.07.2019).

many representatives of the Bukharan Jewish community still have documents up to 4-5 generations proving the existence of Jewish roots.

This case demonstrates three important points. Firstly, we see once again that the databases of genetic companies are imperfect and this can create simplification and generalization that create similar discrepancies. Secondly, this demonstrates the fact that many small groups of Jews remain outside the attention of scholars of various disciplines. Thirdly, the most important conclusion is that DNA testing and its results are not objective and 100% true. Genealogy Nadia Lipes claims that DNA testing is a good method of studying the origin, but this does not help in the absence of documents confirming (or refuting in the case of Bukharan Jews) the results of a genetic study.⁷¹

DNA test results must be combined with documents. Many people who do DNA testing start looking for other evidence of what was shown in the test results for various reasons. Basically, those who receive a large or significant percentage of Jewish ancestry as a result of a DNA test want to know who and in what generation was their Jewish relative. This prompts the creation of a family tree, the study of the history of his family, and his ancestors. Often people turn to professional genealogies that help find relevant documents. Another reason to search for legal documents that confirm Jewish descent is repatriation to Israel. Since Israel does not accept DNA testing as evidence of Jewishness, people have to turn to other methods of proof. The new trend now is the desire of many Israelis to find European roots and get passports of European countries.⁷² Therefore, there was a demand for the restoration of Romanian, Hungarian, and Polish roots. Natives of these countries who have left for Israel over the past 80 years are now looking for European roots as actively as they once looked for Jewish ones. However, the results of DNA testing are irrelevant and are not legitimate evidence when

⁷¹ Public lecture in Moscow by Nadia Lipes (30.07.2019).

⁷² Barry Starr, A Handy Guide to Ancestry and Relationship DNA Tests (Scotts Valley: CreateSpace Independent Publishing Platform, 2017).

obtaining citizenship in any country. Another category of people is businessmen who are looking for their roots not for traveling to another country, but for public life (for example, to become a full member of the Jewish community).⁷³ Americans want to know, first of all, who they are. The USA is a country that was created as a large melting pot, in which representatives of different nationalities became Americans. Not all families kept their stories, many just wanted to forget about the horrors experienced.⁷⁴ And now their descendants are interested in the details. The bulk of American Jews know only that their families came from Russia. Then, Russia was understood as the territories of Ukraine, Belarus, and the entire Russian Empire. But they want to know more, it is important for them to understand how and where their ancestors lived, where their grandfathers and grandmothers were buried.

"This is undoubtedly a very fashionable and rapidly developing phenomenon. A person always wants to know his family tree, because this is his real "basic instinct'," says Caroline Barkan, a genetic specialist from the Swiss company iGENEA.⁷⁵ This company conducts genetic tests to determine the origin of a person, but you can also compare your genome with the genomes of famous people, such as Napoleon or Tutankhamun, which is also a very popular service in the genetic market.

The modern market for genetic diagnosis services can be divided into three areas: cognitive, medical, and recreational genetics.⁷⁶ Cognitive genetics is associated with origin, it is used to identify individuals, to determine kinship. Medical genetics can include a wide range of services to identify the genetic causes of hereditary diseases and to prevent their transmission or development. All the companies discussed in this chapter can carry out all three areas of

⁷³ Nadia Lipes, *Sovetskiye dokumenty. Chto, gde, zachem* [Soviet documents. What, where, why] (Odessa: Astroprint, 2018).

⁷⁴ Barry Starr, A Handy Guide to Ancestry and Relationship DNA Tests (Scotts Valley: CreateSpace Independent Publishing Platform, 2017).

⁷⁵ When a saliva sample changes your life. URL: <u>https://www.swissinfo.ch/eng/dna-testing_when-a-saliva-sample-changes-your-life/44118864</u> (Access date: 21.05.2020).

⁷⁶ James P. Evans, "Recreational genomics; what's in it for you?," *Genetics in Medicine* 10, (October, 2008): 709-710.

genetic analysis, but the most popular and profitable is recreational genetics. As noted earlier, each person, each nation has its own reasons for using DNA testing for origin. The medical community does not take recreational genetics and DNA testing in particular seriously. But overall, there's nothing wrong with entertaining genetics. However, 23andMe was forced to suspend its work for a short period of time, because in the opinion of the US authorities, the company gave a huge amount of medical information to customers who practically did not understand anything in the results. The interpretation of genetic diagnosis for the patient should be provided by the geneticist who is responsible for the recommendations. This regulation applies only to the field of medical genetics when people do tests for diseases and mutations. 23andMe no longer shows and does not give out a medical interpretation, but they still have tests related to the origin. However, the results of recreational genetics remain beyond the attention of specialists, although clients also do not understand why their DNA test for origin shows certain percentages of various ethnic origins. People try to interpret the test results themselves, find a logical explanation of why their test showed "25% Ashkenazi" or "4% Native American".

According to Anatole Klyosov, the results of DNA testing for origin are only estimates, not highly scientific.⁷⁷ In almost any commercial medical genetic laboratory today, you can take an origin test. People think that they are paying for scientific truth, and they get only estimates. As previously described, the accuracy or fidelity of the DNA test for origin depends on many factors (the composition and variety of the database of genetic material, the study of a particular ethnic group, the methods of grouping and naming groups in the database, etc.). Since the genetic diversity in any population (people) is large, it is impossible to determine its ethnicity by the genotype of one individual person. There are no genetic markers characteristic of only one person. In the population, one of the variants of any marker can be present, as well

⁷⁷ Anatole A. Klyosov, DNA Genealogy (Irvine: Scientific Research Publishing, 2018).

as many. At the same time, representatives of another nation may have the same options. We can conclude that DNA testing for origin has a lot of inaccuracies, which can often be significant for humans. There is no single formula, template, and protocol by which the result of a genetic test for origin is formulated, therefore, various genetic companies often use too specific or too vague formulations, percentages, names. Thus, the lack of explanations, the fuzziness of the results, and the use of percentages of up to hundredths of a fraction of mislead people. After receiving such results, people begin to search and come up with a logical explanation, which cannot always be true. Moreover, trust in interest as a result, and in genetic science makes people forget that ethnicity, nationality is not biological, but social concepts. The next part of this chapter discusses how the results of DNA testing affect self-identification and self-perception.

5.2. The influence of DNA testing on people self-understanding and self-perception

One day my father told me that his great-grandfather was from a place that is located on the border of Finland and Russia. There was no clarification on which side of the border that place was, but for some reason, I decided for myself that my great-great-grandfather was a Finn. From that moment I began to believe that I inherited blue eyes, fair skin, and fair hair because I have Finnish roots. Moreover, I began to recall various facts that I was always interested in the culture of the North, Scandinavia, and that I always loved the tales of the northern countries. All this seemed to me a direct consequence of the fact that I have Finnish ancestry. Now, this whole story seems very funny and stupid to me, but if at one time I was only affected by the assumption of the origin of my great-great-grandfather, then what happens to people when they see the official results of ancestry DNA testing? How does self-perception change when people see or don't see the expected points in the origin test? As mentioned in the introductory part of this thesis, people who do ancestry DNA testing often expect to see certain results in advance, or they are prepared in advance for surprise and surprises that can present the test results. That is why we cannot conduct a full-fledged study of the effect of ancestry DNA testing on selfperception. However, it is possible to describe and study several indicative cases that give an idea of this phenomenon. Moreover, for this thesis, it is important to consider cases where through DNA tests people find out about their Jewish origin or, on the contrary, find rebuttals.

Specialists of commercial genetic laboratories practically do not directly contact clients, so they can't tell much about how the process of opening test results occurs, what their clients are experiencing at that moment, how it affects or does not affect their future life. Of course, we can see the "amazing" stories in the commercials of these companies, where people are shocked, discouraged by the results, where they roar or are unable to say something from the emotions received. Naturally, many people realize that these are just promotional videos that are designed to attract a larger audience, but does this seem to be true? There are hundreds and thousands of videos on YouTube where people open an envelope with the results of their video test for a personal blog. Their reaction is not very different from what is shown on the sites of genetic companies: many of them roar, wonder, call their parents to share information or to ask questions. Such videos have hundreds of thousands of views. Again, it's difficult for us to judge the sincerity and truthfulness of such videos, although we cannot deny this. Rosa Shalyakho, an expert at the EVOGEN Medical Genetics Laboratory and Nadia Lipes, told the genealogy during the interview that the reactions of the people they worked with were also ambiguous, but not as violent and loud as shown in many videos.^{78, 79} However, customers are trying to find a momentary logical explanation for the results that they see. Often their explanations are completely devoid of logic, but it's important for people to have an interesting story that matches their own idea of themselves, their family.⁸⁰ Anatole Klyosov calls this process "mental fit", that is when a person tries to correlate test results with facts from his life, especially

⁷⁸ Expert № 1. Interview: 22.05.2020.

⁷⁹ Expert № 2. Interview: 24.05.2020.

⁸⁰ Expert № 3. Interview: 26.05.2020.

when it does not make much sense.⁸¹ This is exactly what happened to me when I came up with my Finnish origin. Often this happens because people blindly trust the test results, considering them highly scientific and accurate. "Virtually no one questioned what he saw in the results of his DNA origin test. People believe because they believe that science and accurate scientific research methods cannot be wrong." ⁸²

So we see how massive this kind of science has become, and how ancestry DNA tests appeared in pop culture.⁸³ Genetic research has a resource for changing privacy and social life in general. As part of the topic of this thesis, it is important for me to see how the latest genetic discoveries in the field of Jewish Studies, genetic analysis as a new tool can affect the understanding of Jewishness.

Before proceeding directly to the cases when people learn about their Jewish roots (or their absence), it is worth recalling the case that has become significant for modern studies of identity. A couple of years ago in Hungary, there was a discovery that struck the public. Csanád Szegedi was the second person in the radical nationalist party of Hungary "Jobbik" (shorthand for Jobbik Magyarországért Mozgalom – Movement for a Better Hungary), and he was one of the initiators of the creation of the Hungarian Guard. Members of this paramilitary group organized marches against gypsy crime. In addition, Csanád Szegedi was a famous anti-Semite. He blamed the Jews for all the troubles of Hungarian society exactly until he discovered that he himself was one of them. In June 2012, Szegedi reported that he learned that his maternal grandfather and grandmother were Jewish. Grandmother survived in Auschwitz concentration camp, and grandfather was in forced labor.⁸⁴ Szegedi was brought up by a Hungarian reformer

⁸¹ Anatole A. Klyosov, DNA Genealogy (Irvine: Scientific Research Publishing, 2018).

⁸² Expert № 1. Interview: 22.05.2020.

⁸³ How DNA ancestry testing can change our ideas of who we are. URL: <u>https://theconversation.com/how-dna-ancestry-testing-can-change-our-ideas-of-who-we-are-114428</u> (Access date: 22.05.2020).

⁸⁴Anne Applebaum, "Anti-Semite And Jew. The double life of a Hungarian politician," *New Yorker* (November, 2013).

in Hungarian and at first, was not interested in his own Jewish roots and the Jewish religion.⁸⁵ After confession, he turned to the rabbi for help. He took the name David, learned Hebrew, visited Israel, and went through the rite of circumcision. Szegedi now lives in Israel as a religious Jew, observes the Sabbath, and attends the synagogue.⁸⁶

Naturally, we cannot say that this case is representative and we cannot use it to compare with other cases when people suddenly learn about their Jewishness. However, it is worth noting that it is an "unexpected Jewishness" that affects people in a special way for various reasons. Firstly, many people still have no idea who Jews are. Secondly, there are many myths in society that have been collected and spread over several centuries. Various conspiracy theories and anti-Semitism preserve the old myths and create new ones these days. All this affects the fact that often Jewry is perceived as a homogeneous closed secret community in which there are special rules and traditions. Therefore, often when people see "20% Ashkenazi / Sephardi", they either do not understand what this means or represent stereotypes. On various Internet portals about Jewish culture and religion, you can find appeals to a rabbi who answers readers' questions: "I just found out that I am a Jew! What should I do?"⁸⁷, "Who are the Jews, and what does it mean to be a Jew?"⁸⁸. You can also find forums in other online communities with the headlines "Do you remember at what age you understood that you were Jewish, how you learned this, and from whom?"⁸⁹, "When did you realize that you belong to Jewry?"⁹⁰ etc.

⁸⁷ YA tol'ko uznal, chto ya yevrey! Chto mne delat'? [I just found out that I am a Jew! What should I do?]. URL: <u>https://imrey.org/%d1%8f-%d1%82%d0%be%d0%bb%d1%8c%d0%ba%d0%be-</u> %d1%83%d0%b7%d0%bd%d0%b0%d0%bb-%d1%87%d1%82%d0%be-%d1%8f-

%d0%b5%d0%b5%d0%b5%d0%b5%d0%b9-%d1%87%d1%82%d0%be-%d0%bc%d0%bd%d0%b5-%d0%b4%d0%b5%d0%bb%d0%bb/(Access date: 19.05.2020).

⁸⁹ Pomnite li vy, v kakom vozraste ponyali, chto vy yevrey, kak vy eto uznali i ot kogo? [Do you remember at what age you understood that you were a Jew, how did you know this and from whom?]. URL: <u>https://thequestion.ru/questions/92385/pomnite_li_vy_kakom_vozraste_poniali_vy_41a9f748</u> (Access date: 19.05.2020).

⁸⁵ Anne Applebaum, "Anti-Semite And Jew. The double life of a Hungarian politician," *New Yorker* (November, 2013).

⁸⁶ Ibid.

⁸⁸ Kto takiye yevrei i chto znachit byt' yevreyem [Who are Jews and What Does It Mean to Be Jewish]. URL: <u>https://toldot.ru/evrei.html</u> (Access date: 19.05.2020).

⁹⁰ Kogda vy reshili , chto otnosites' k yevreystvu? [When did you realize that you belong to Jewry?]. URL: <u>https://vk.com/topic-724499_1311369?offset=20</u> (Access date: 19.05.2020).

Therefore, the issue of Jewishness and the moment of discovery of such information is an important point for many of those who went through this. Since this thesis focuses on genetic research and ancestry DNA testing, an important aspect is the consideration of cases when people found out about their Jewishness, about the presence of Jewish origin or its absence through ancestry DNA testing. Next will be considered those cases that have been told to me by various experts in genealogy and genetics from their experience working with different clients.

Professional genealogies have become more popular with the popularization and extension of ancestry genetic analysis. The Russian-language field of genealogy and genetics has a great focus on the Jewish segment. Genealogy Nadia Lipes says that there are many requests on the Russian market for looking for Jewish roots.⁹¹ The majority of those who are interested have nothing to do with the Jews, but they believe in family legends more. Such people are willing to spend money on restoring family documents that they do not always need. It is in such cases that professional genealogists recommend DNA testing.⁹² As a rule, most of those who use ancestry DNA testing does not confirm their family legends.⁹³ But it happens, and vice versa, when a person passes a DNA test for some of his goals and suddenly discovers that he is half Jewish. The bulk of people who turn to Nadia Lipes are interested in the possibility of repatriation. The Israeli embassy is interested in specific documents, not family legends, and not even the results of genetic analysis. Finding documents is an expensive and lengthy procedure, so the results of DNA testing and the percentage of Jewish origin show whether it makes sense to search for documents. Moreover, the DNA test does not show which side the necessary roots are, and after detecting a certain percentage of Jewish ancestry, you

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⁹¹ DNK. Chto eto, zachem eto [DNA. What is it, why is it] URL: %d0%b7%d0%b0%d1%87%d0%b5%d0%bc-%d1%8d%d1%82%d0%be/ (Access date: 19.05.2020).

⁹² Expert № 3. Interview: 26.05.2020.

⁹³ Expert № 2. Interview: 24.05.2020.

need to repeat the analysis for parents and grandparents.⁹⁴ As a result, the test itself does not help to obtain Israeli citizenship but tells whether to search for documents at all. It often happens that the DNA test shows a small percentage of Jewish origin, which is not enough to search for documents, but information about the presence of Jewish ancestry already forces us to reconsider self-perception. When people discover "10% Ashkenazi / Sephardi", they are curious where these percentages came from, who was the ancestor who "gifted" these percentages. As a rule, after the discovery of the test results, people begin to restore the history of the family, ask more questions to parents, grandparents, be interested in the origin of the whole family, and the migration routes that their family went through. Moreover, in such cases, people simultaneously become interested in Jewish culture, traditions, and customs. And even if they do not receive Israeli citizenship or do not become religious Jews, their self-perception is already changing from the information that they acquire in the process of family research. "A couple contacted me once, who found in the results of DNA testing a certain percentage of Ashkenazi origin. Repatriation was not their goal, they did not even suspect the presence of Jewish roots. We searched for family documents only for their curiosity. Later this couple told me that they became interested in Jewish culture, began to study Hebrew, and began to cook Israeli cuisine. Information about Jewish roots changed their way of life, but at the same time, they did not want to get rid of the "non-Jewish" part of themselves and their lives. They continued to live in the same place, to have the same friends. That is, they accepted information about themselves, about the history and roots of their families, but this did not make them radically new people, just as they did not remain the same." ⁹⁵ As we see in this case, there was no fundamental change in self-perception, as was the case with Szegedi. However, we cannot deny the fact that there have been some changes in the lifestyle of these people. It is impossible

⁹⁴ Analiz DNK [DNA analysis]. URL:

http://nadialipes.info/%d0%b0%d0%bd%d0%b0%d0%bb%d0%b8%d0%b7-%d0%b4%d0%bd%d0%ba/ (Access date: 18.05.2020).

⁹⁵ Expert № 2. Interview: 24.05.2020.

and pointless to ask how they feel like Jews, since it is impossible to evaluate or measure the self-perception or self-identification of a person, and we can only evaluate how their lifestyle has changed after new information about the origin.

Besides the cases when people accidentally learn about the presence of Jewish roots, the more frequent are the cases when people purposefully want to find Jewish origin for various reasons. So, during an interview, one of the experts told the story when a man did DNA testing to prove his own Jewishness. This man was born and raised in the USSR. He recalled that when he was a child, other children at school and beyond often teased him and said unpleasant nursery rhymes about Jews: "I did not understand why they offend me, because our family was no different from the families of my classmates. We were ordinary Soviet people. In the family we spoke Russian, we ate ordinary food, did not celebrate Jewish holidays, and did not attend the synagogue." ⁹⁶ Throughout his life, a man tried to hide his Jewishness, did not try to establish contact with Jewish culture. And only in adulthood, having grandchildren, he decided to reconnect with his origin. He began to explore more the history and traditions of his family, which was not so simple due to the fact that much was lost and forgotten in the Soviet period. Then this man decided to do DNA testing to ascertain his Jewishness: "I felt that it was in me, but years of denial weakened my confidence. When I saw the test results, I seemed to become full. I clearly understood that it was in my blood, that my blood was me." ⁹⁷ In this case, we see that "scientific" proof of one's identity was important for a person. This criterion of "scientific", "ancestry", and "origin" is a powerful argument for many. Thus, people believe in percent in test results, because the analysis is performed on the basis of their biological material using highly scientific technologies. The results obtained in this way seem objectively truthful, scientific, accurate, and undeniable for many people. The fact that people often unconditionally trust the results of genetic testing and that they are ready to change their lives, their self-

⁹⁶ Expert № 3. Interview: 26.05.2020.

⁹⁷ Ibid.

perception due to new information, is a very important element for modern identity researches. It is especially interesting that the criterion of "scientificness" sometimes forces people to review their entire lives and becomes higher than the life experience and lifestyle that has developed over the years.

Other cases show us how not only unexpected or anticipated Jewish descent may prove to be key to revising self-perception. Perhaps more interesting are cases where a DNA test shows the absence of Jewish roots. A couple of years in the USA and in Ireland there was a story that, it seemed, could only happen in a book or film. In North Carolina, Jessica Benson decided to do a genetic analysis to clarify her knowledge of her Jewish background, and instead, she discovered Irish origin in her DNA test results.⁹⁸ What happens to a person who was born and raised in a Jewish family with Jewish traditions, religion, and attitude, which was dictated by origin? In the case of Jessica, she was shocked but immediately began to conduct her own investigation, during which she discovered that her father was messed-up in the hospital.99 Thus, it turned out that Jessica is only half Jewish. As a result of a search for a child who was supposed to be in the place of her father, she found Collins Plebuch, who also did DNA testing once and did not understand why she was not Irish, but Jewish. The influence of this confusion on both families was significant, both families began to exchange information, family legends, and traditions. Unfortunately, there is no information on how the new information had an impact on each member of both families, but both women describe this story as the most exciting thing in their life. This case shows us that not only the presence but also the absence of Jewish origin as a result of the DNA test, makes people review their lives, look for "missing percentages" and ask a lot of questions to themselves and their family. In the process of writing this thesis, I managed to contact a woman who shared her story but wished to remain anonymous. The

99 Ibid.

⁹⁸ I thought I was Irish – until I did a DNA test. URL: <u>https://www.irishtimes.com/life-and-style/abroad/i-thought-i-was-irish-until-i-did-a-dna-test-1.3174491</u> (Access date: 25.05.2020).

interviewee was born in Ukraine in 1972 in a Jewish family. The family respected Jewish traditions, holidays, often spoke at home in Yiddish and went to the synagogue. "I didn't feel special, because I had many Jewish classmates, friends of my parents and their colleagues were also Jews. It has always been usual for me. But I never felt an attachment to traditions, customs. I just did everything because my parents and everyone else did it."¹⁰⁰ In 1991, the whole family repatriated to Israel, where the girl had to adapt to a new life, a different culture, a different language: "After the move, my parents became even more religious, they expected the same from me. It didn't matter to me. Our relationship began to deteriorate. I felt terrible in a foreign country, and my parents didn't understand me either." ¹⁰¹ After 10 years of living in Israel, the woman moved to Russia, where she still lives. She rarely visits Israel, does not celebrate Jewish holidays, and has no ties with Jewry except for a couple of old friends and family. A year and a half ago, a woman decided to do ancestry DNA testing for the sake of interest and fun. The test results did not show only "7% Ashkenazi". Such a small percentage surprised the woman, and she decided to try to learn more from her parents. As a result, it turned out that the parents adopted the girl when she was only 2 months old and hid it for many years. "When I found out, I was hurt, offended. I didn't understand anything. But later I felt free. All my life they tried to instill in me this Jewish way of life, which was completely alien to me. When I found out that I was not Jewish, I stopped feeling guilty. But I was sad, I was pretending all my life, I wanted to be a good Jewish daughter. Yes, I still go to Israel, I have Israeli citizenship, I have a good relationship with my parents. They are my parents. I love them. But now I have my own family, my children, and I still do not understand who I am. I still have a void. I'm still lost."¹⁰² So, this case demonstrates that the Jewish way of life, identity (in this case, it is difficult for us to talk about Jewish identity or self-awareness because the woman had certain difficulties with self-

¹⁰⁰ Respondent 2. Interview: 27.05.2020.

¹⁰¹ Ibid.

¹⁰² Ibid.

determination), which are formed and practiced over the years, are very strong. And the destruction or doubt of this Jewish identity is difficult. Of course, in this case, we must take into account the fact that the difficulties of finding and rethinking her "I" are also due to the family secret of adoption. But despite this, it is possible to assume that the absence of "Jewish origin" in the results of ancestry DNA testing has also a very serious and strong influence on self-awareness as well as its presence.

In this chapter, the phenomenon of Bukharan Jews has already been mentioned. During an open public lecture, Nadia Lipes told a story from her practice when she was approached by a man who was confident in his Jewish origin (he had Jewish documents of ancestors, he and his family continued to lead a Jewish lifestyle), but as a result of DNA- testing was only "1.1% Ashkenazi."¹⁰³ Such information shocked the man, made him doubt his own Jewishness. However, the genealogy explained why the results of Bukharan Jews look non-Jewish, which dispelled the doubts of the man and did not affect his self-awareness and self-identification in the future.

So, in this chapter, the topic of DNA testing, Jewishness, and self-perception was addressed. It is worth noting several points that are important for a general understanding of the topic. First, although ancestry DNA testing uses the scientific method of analyzing genetic material, there are certain factors that influence the test results. The composition and variety of the commercial genetic laboratory database directly affect the accuracy of the result. Since each laboratory compares genetic material only between samples of its customers, the test result can vary from one company to another. In addition, each genetic company has its own system of grouping ethnic/national groups, which is also reflected in the test results. Secondly, DNA testing is not in all cases a weighty argument. For example, legal documentary evidence of Jewish origin is required for repatriation to Israel. In this case, genetic testing can only be a

¹⁰³ Public lecture in Moscow by Nadia Lipes (30.07.2019).

starting point for further search for documents. Moreover, in the case of doubtful or unexpected results of DNA testing, many people prefer to seek help and information from professionals and check the reliability of the test results in other ways.

The idea of the uniqueness of genetic material, which can serve as an objective and independent biological, innate indicator of a person, has become popular among the population in the past few years.¹⁰⁴ The availability and popularity of genetic analysis have made such a procedure a kind of social technology for identifying and perceiving oneself.¹⁰⁵ The effect "It's me because it's in my blood" arises from the belief in the accuracy of the scientific method of analysis. Often this is just a "mental fit" or self-deception. However, we cannot deny the fact that the results of DNA testing have an effect on people's self-perception and self-identification. Unfortunately, we cannot draw conclusions about the strength of this influence on the basis of several stories. Each case is unique and contains its own background, additional factors of influence. But despite this, we can say that for many, genetics has become a powerful new factor in the formation of identity and understanding of Jewishness.

¹⁰⁴ Christine Hauskeller, "The Genetic Re-Making of Human Identity and Why it Should not be Trusted," in *Photographers and Scientists Explore Identity*, ed. Keith Roberts (Norwich: Norfolk Contemporary Art Society, 2009), 37-49.

¹⁰⁵ Christine Hauskeller, Steve Sturdy, and Richard Tutton, "Genetics and the Sociology of Identity," *Sociology* 47, no.5 (October, 2013): 875–886.

6. CONCLUSION

The present thesis aims to consider the question of why, despite abuses genetics researches on the past, the genetics argument gaining popularity among population and used as a new tool on scholar level on the Jewish case. The second aim of this study was to investigate how genetics affects the modern understanding of Jewishness in general and what it tells us about Jewish self-perception and self-determination. In order to do it, I have reviewed different theoretical frameworks of understanding Jewishness and the role of genetic argument on it in the past and now. It allowed us to consider the role and the place of genetics in modern debates on Jewishness. The study uses theoretical analysis in order to understand the changes in different approaches to understandings of Jewishness. I have also conducted some semi-structured interviews with the experts of the analyzed private commercial genetics labs and with people who did ancestry DNA testing to gain insights into the commonly discussed issues. For this reason, the present study does not aim to provide a separate qualitative analysis of interviews but to use them on a supplementary basis.

Why is the genetics argument gaining popularity among population and used as a new tool on scholar level? Firstly, it is worth noting that genetic analysis is a popular research tool that has recently become actively used in social and historical research.¹⁰⁶ This type of analysis allows us to revise the myths of origin, migration issues, cases of violent change of religion, and find new explanations based on biological material. Since genetic analysis is based on biological DNA material, for many, the results of such analysis seem undeniably accurate, objective, and truthful.¹⁰⁷ It is this element of high-precision scientific that creates the "mental fit" that is formed in many people who have done DNA testing.¹⁰⁸ Thus, the genetic argument is often decisive and irrefutable in the academic field and at the private level. Secondly, now

¹⁰⁶ Robert Plomin, *Blueprint: How DNA Makes Us Who We Are* (Cambridge: The MIT Press, 2018).

¹⁰⁷ Anatole A. Klyosov, DNA Genealogy (Irvine: Scientific Research Publishing, 2018).

¹⁰⁸ Ibid.

there is no other type of analysis that could compete with or surpass genetic analysis in the study of the origin and migration of past centuries. Thus, even despite the inaccuracies, generalizations, and omissions that exist in the results of genetic research, this may seem to be the most accurate and modern method. At the same time, the availability and popularity of genetic testing creates negative consequences that often go unnoticed.¹⁰⁹

How does genetics affect the modern understanding of Jewishness? There are many different ideas for being Jewish and variations in understanding Jewishness that differ in Jewish groups around the world.¹¹⁰ We cannot talk about one universal understanding that would apply to all Jewish groups throughout history. However, despite this, we must note the fact that genetic research affects the understanding of Jewishness to varying degrees throughout the world. By virtue of its natural biological origin, the aspect of ancestry is increasingly perceived as an objective for entry or belonging to one or another ethnic/national group. In addition, we cannot exclude from the fact that genetic evidence of Jewish origin is not only discussed but also used in individual cases in Israel. Recently, more and more often people find out about their Jewishness or prove it through genetic analysis. Various studies and publications on the "Jewish gene" are rooted in the genetic understanding of Jewishness not only in society but also in the academic field.

How does DNA testing influence the self-understanding and self-perception in Jewish case? The study, assessment, and measurement of self-perception, self-identification is a controversial element of social science. However, the study and consideration of factors that influence the process of formation of self-perception and self-identification is a less problematic area.¹¹¹ Thus, we cannot speak with high accuracy about the effect of DNA testing on self-

¹⁰⁹ Heather Murphy, "How White Nationalists See What They Want to See in DNA Tests," *The New York Times* (July, 2019).

¹¹⁰ Simon J. Bronner, *Jewishness: expression, identity, and representation* (Oxford: Littman Library of Jewish Civilization, 2008).

¹¹¹ Rogers Brubaker, *Trans: Gender and Race in an Age of Unsettled Identities* (Princeton: Princeton University Press, 2016).

perception, but we can trace some patterns that may be characteristic of the Jewish case. Based on interviews with experts and people who have done ancestry DNA testing, it can be said that it is the presence/absence of Jewish origin as a result of testing that has special significance and influence on self-perception. Probably stereotypes, myths about the Jews still make "Jewishness" some exotic and unknown thing. "No one is very surprised, shocked, or scared when he sees the presence or absence of Indian, German, Russian origin. However, in the case of Jewish origin, I observe opposing violent reactions from clients." ¹¹² This thesis does not contain many interviews and analyses of various testing cases, which would make the conclusions more objective and reasonable, however, the collected material, stories, and opinions can give an idea of the relationship between genetic analysis and self-perception.

This study for the first time explores what new types of questions scientists pose in Jewish studies, taking into account genetic arguments, and what are the new tools to solve old questions. This thesis shows what role genetics plays in understanding Jewishness at the academic level and in shaping self-understanding. Further research should be conducted using a larger number of interviewed respondents in order to find out more objectively and representatively how and why the results of DNA testing have an impact on self-identification, self-perception. In the future, the difference between Jewish and non-Jewish test cases should be investigated in order to understand the peculiarities of perception and the consequences of the results of genetic testing in the presence/absence of Jewish origin.

¹¹² Expert № 3. Interview: 26.05.2020.

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