

I only remember seeing one photo of my British cousin. It has been imprinted in my memory, even though it has been decades since I looked at it. She is sitting on the floor and looks a little sad into the camera lens with her big baby eyes.

She is four years younger than me, and we have never met. In 1989, when she was two years old, she was taken by the social authorities and adopted, and my father, my siblings, and I are her closest living biological relatives.

My father and my cousin's father were brothers, and when her father died in 2020, barely a month and a half after her mother, my father inherited his brother's small life insurance and the money that was on the couple's joint account.

My father has told me that he has put the money aside for his niece, and that she will receive it if she contacts us one day. But what if we never hear from her? How do we find her?

In my quest for answers, I ended up at myheritage.com - a digital platform that promises to help users find missing family members or fill in new branches of their family trees. This is done, among other things, through an enormous genetic database. Once you have paid, you will receive a test kit, which is used to collect a bit of saliva or mouth swab.

You then send the sample back to the laboratory, which extracts and maps the user's unique DNA profile. The results are uploaded to the platform, which matches the sample against the millions of results they already have. When they find a match, you will be notified, and if there is no match that can be used, you can choose to leave the sample in the database and wait for a closer biological relative to take a similar sample someday. If my cousin has done this - or if her children do at some point - I will be able to find her.

Millions of people worldwide have already uploaded their DNA to commercial genealogy platforms. The largest of the platforms, ancestry.com, has 22 million people in what they call the world's largest consumer DNA database.

Most people would like to find out where they come from and know more about their heritage," says American Lisa Barron Kauppinen, who works with genealogy professionally and has helped over 100 people find their lost relatives. By using genetic data platforms in combination with traditional genealogy, she mainly helps adopted people and those looking for ancestors they do not know or cannot find. "Family health history is also a typical reason why adopted people seek genealogy," says Lisa Barron Kauppinen, who lives in Florida. She experiences that many adopted people and their biological families have been happy to find each other. Some have even traveled across the US to thank her personally. "Most people become extremely happy when they succeed in breaking down the brick wall in their family tree that they have not been able to move beyond," Lisa Barron Kauppinen says.

However, it is not always the case that the results bring joy. In one case, an adopted client had to face the fact that her biological parents had been cousins. Another found out that her grandfather had been a Nazi during World War II. A third client had been told that her grandfather died in the 1950s, but Lisa Barron Kauppinen found him alive and well in 2018, and in her own family tree, Barron Kauppinen found a bigamist. "It happened in the 1880s in Scotland. The man was sent to prison for it, wife number two ended up in a poorhouse, and their son was declared illegitimate and had his last name changed to the

mother's maiden name. Genealogy is full of surprises. There's nothing that shocks me anymore," says Lisa Barron Kauppinen.

REVEALED BY THE FAMILY

It's not just private individuals who are interested in genetic genealogy these days, it can also be used in police investigations.

In the USA it is legal to use in criminal investigations of major crimes, and several other countries are conducting pilot studies in the area.

"If you have a person you don't know, but have DNA on, for example a perpetrator of a crime, you can actually find the person without knowing him or her,"

explains Michael Dupont, who is an archivist at the archives and chairman of the Society for Danish Genealogy and Personal History.

In genetic genealogy, DNA testing is used in combination with the traditional arsenal of genealogy tools, explains Michael Dupont. It can be historical records such as birth, marriage, confirmation, and death entries in church books, as well as census, military, immigration, and yearbooks. Together, the information can be used to calculate who a perpetrator is - even if you don't have a DNA sample from the person themselves. This happened in a double murder case from 2004 that was solved by our Swedish neighbors with the help of a genealogist in 2020. The police had found DNA from the suspected murderer at the scene of the crime, but had not been able to locate him using traditional investigative methods. The genealogist was allowed to send DNA material from the suspected murderer out to large DNA databases. In cases where there were similarities - matches - the genealogist began mapping relatives.

Michael Dupont explains that it can be an extensive work, as there can be many, and the biological relationship may be small.

"It's about finding a common ancestor that both the suspected perpetrator and the match have in common. Then you make a genealogy chart because you know that the criminal must be found in one of the family lines," he says.

When you are left with different branches of the family, you can contact some people from each branch and ask if they would like to have a DNA test, and then see how close their profiles are to the perpetrator. When you find a branch of the family at some point where there is much more DNA in common, you start approaching it, he explains. "Then you can narrow it down and maybe catch him in the end," says Michael Dupont. In the case of the Swedish double murder, DNA testing, genealogy research, and subsequent investigative work led to a Swedish brother pair. A test of both of them identified one of the brothers as the one who had left DNA at the scene of the crime in 2004 and he eventually confessed.

This type of clarification will come to more in the countries that have to use the technology, according to Martin Wittrup Enggaard, who has submitted a citizen proposal that the Danish police should be able to use genetic genealogy in the investigation of murder, terrorism, and rape.

Enggaard works as an investigator and professional consultant in the department for person-threatening criminal activity in Copenhagen Police, but submits the proposal as a private person together with a number of co-proponents. The proposal was presented in the Danish Parliament on January 11th of this year and is now awaiting first treatment.

In the citizen proposal, it is proposed that the police may only use genetic genealogy with a court order. The police must also be able to document that the unidentified DNA with reasonable suspicion originates from the perpetrator and that all other existing and available DNA options have been exhausted.

"There will be more and more examples from the countries that use genetic genealogy, showing that they solve cases extremely quickly with this tool as the key," says Martin Wittrup Enggaard, who experiences that the parties concerned with the murdered and rape victims have a hard time understanding that it is an option that the police may not use. "When such a strong tool is available but we can not use it right now, I think we should go in politically and assess how we weigh the rights and privacy concerns of the public against the ability to solve serious crimes. This should be weighed against the privacy and consideration for the bereaved or those who have suffered harm."

"The danger with genealogy platforms is that they present things as if they are truths and not information that can be pieced together by other genealogists," he explains.

To correctly interpret DNA results, it is important to go to sources systematically and learn how to work with church records, census records, and the more difficult sources, Dupont explains. On the platforms, one has access to many different official documents, but also to the genealogy of others that can be copied into one's own family tree. If one takes their research as gospel without having control of the sources or double-checking, errors can be made.

At the same time, one must be aware that one can get some unpleasant surprises along the way.

"I have taken a DNA test myself, but I don't think I would have done it if I thought there was something I could reveal," says Michael Dupont.

Yasir Ahmed-Braimah also sees ethical problems that the new technology can bring. Ahmed-Braimah, who is an assistant professor of biology at Syracuse University in New York, points, among other things, to the large amount of personal data that the commercial companies possess.

"My hope is that we can keep these companies honest and not give them the opportunity to abuse people's privacy and the vast amounts of valuable personal data they have on millions of people. So far, things are mostly okay, but we need to ensure that it stays that way," he says. At the same time, he can see the purpose of the platforms and believes they are justified. "I definitely think these DNA tests are a good thing for those who are interested. They provide a service that in many ways democratizes the ability to reclaim one's history and identity. It gives everyone the opportunity to connect with the past and learn about their history," says Yasir Ahmed-Braimah. He points out that many people do not have a

detailed record of their family trees, among other things as a result of historical suppression and marginalization. This applies to descendants of slavery or others who have lost contact with their culture and biological origins. They now have the opportunity via the DNA platforms that they did not have before. I am still waiting for the results of my DNA test. The laboratory has received the sample and says I can expect the results in February. I hope the answer will bring me closer to my cousin, but it is also associated with fear. What if my search ends up hurting her? Meanwhile, my father has found two pictures of my cousin that I don't remember seeing before. In one, I'm surprised to see her as a bigger girl. She has long, brown hair and is sitting close to my uncle on a dark sofa. My cousin's head rests on her father's shoulder and she has her cheek on a doll she holds in her arms. I don't know if she remembers her time in the family and what it was like to be a child of her parents. But I know they loved her and I hope I have the opportunity to tell her that.