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BLOOD TIES

## Explosion in genetic genealogy

[Mathieu Perreault](#)

La Presse

A new fad has taken over North American retirees: genealogy with a genetic sauce. With a simple test costing a few hundred dollars, and a sample of saliva, it can be determined from which continent your ancestors originated. People of Quebec descent can benefit from an even more precise offering, which identifies the region of France whence their ancestors came. Genetic genealogy has also confirmed that Gengis Khan must have had an uncommon harem, since he is the ancestor of 8% of the population living in the land of the ancient Mongol empire. But misuse is possible: in the United States, some whites use their native american genes to obtain fiscal advantages, or their african or asian genes to benefit from reverse discrimination.

Searching for one's ancestors using genetic tools can sometimes hold many a surprise. If we can find our zulu or native american forebears, we also risk discovering that we're not our mother's son.

### Portrait of a practice gaining momentum

A few years ago, one of the directors of the Quebec Daigle Association (l'Association des Daigle du Québec, one of numerous genealogical groups in the province), decided to use the new technique of genetic analysis. The results were a profound shock to him: he did not have any of the genes normally associated with the Daigles.

"I had an opportunity to talk to him, to explain how this could be possible", comments Jacques Beaugrand, a retired psychology professor with a great interest in genetic genealogy. "He was really surprised. I told him that this perhaps highlights one of the main practical problems in genealogy, that research is often done by sometimes unreliable amateurs. The other possibilities were that there may have been, at some point, an adoption or an erroneous paternity."

In the United States, genetic genealogy is making even bigger waves. This spring, the New York Times reported a case where a young female student had written "asian" on her university enrolment form, even if she was white and knew of no asian ancestry. The reason: she had recently undergone a genetic test which showed that her genes derived 98% from Europe and 2% from eastern Asia. She was admitted and even received a grant. She suspects she benefited from a reverse discrimination programme.

*"We've been talking about genetic genealogy for decades, but it's only in the last five years that we're actually doing it, because the costs of the tests have dropped so much", explains (Jacques) Beaugrand, who looks after the francophone section of the "French Heritage DNA Project", established by two California genealogical societies. "And, in the last three years, he adds, there have been many new developments. There are more and more reliable companies*

*doing this type of testing, particularly in the United States."* In 2004, a review of genetic genealogy in Nature Genetics covered a dozen reliable companies, some of which are listed on the stock market. Tests cost between 100 \$ US and 700 \$ US.

According to Beaugrand, who worked a lot with genetics while teaching at UQAM [University of Quebec in Montreal], this new technique provides a more rigorous framework for genealogy. *"Sometimes, tests from two companies might give slightly varying results, but this does not mean that they are not serious. It's simply that they will use different genetic markers"*. In general, companies use either male markers, from the Y chromosome, or female markers, from mitochondria, a part of human cells which plays an important role in providing energy, and which is transmitted only by mothers, and not by fathers.

Interest in genetic genealogy in Quebec is still mild, according to Beaugrand. *"Here, people are of the opinion that they know their genealogy really well, because their family has been here for many generations. But, in other parts of Canada, and in the United States, there have been more migrations. It's not rare to find someone's children living at the four corners of the United States. So, doing genealogy becomes more difficult. People get the impression they're cut off from their roots. When they get to the age of retirement, as is the case with many baby-boomers, they dive into the story of their origins."*

### **French DNA project**

The French DNA project retraces a participant's ancestors who were born in France, using numerous genetic markers. But the process is hampered by French laws that prevent genetic analyses which are not sanctioned by a research organization or a judge. *"There's a juridical haze in France, because of laws against paternity tests, in order to prevent adopted children from locating their biological parents, and to allow women to have babies "under the name X", without naming the father"*, says Beaugrand. For other ethnic groups, identification is more vague. *"In general, tests hardly extend beyond a region, says Beaugrand. When I see companies stating that they can find Jewish ancestry, I find that doubtful. There are Middle Eastern markers, which may represent Armenians or Iranians as well as Jews. I'm also sceptical about a project doing the genetic portrait of scottish clans."* This haze did not prevent a Californian, John Haedrich, from claiming Israeli citizenship based on genetic tests showing that he had jewish genes. Israel refused because Mr Haedrich is Christian, but he's adamant and submits that his european ancestors must have denounced their faith during the Inquisition.

### **Native American roots**

Lack of precise territorial boundaries also complicates a strategem used by certain clients of genetic genealogy companies: claiming native american ancestry. Certain american tribes allot their members part of the profit of casinos which have sprouted on reserves these recent years; to be a memder, it is often enough to have native american great-grandparents. But the fact of having native american genes does not allow identification of a specific tribe. This type of approach is called "the native american princess syndrome" in the industry. Notwithstanding, finding native american blood is one of the most common surprises in genetic genealogy. *"It's very frequent in Quebec, as in most of North America, says Beaugrand. In the States, we also see many blacks who discover they have white ancestry. With genetic genealogy, we were able to certify that Thomas Jefferson really had a child with a black slave."*

This new technique is especially popular with american blacks, who can find out approximately

from which part of Africa they came. Show host Oprah Winfrey thus discovered she has Zulu blood, and the ancestors of cinematographer Spike Lee may derive from Niger or Cameroon. Ship registers of companies who engaged in the slave trade were relatively well detailed, which allows us to know the number of slaves coming from different countries in central and western Africa. Genetic genealogy companies have performed detailed analyses in these African countries. But some critics underline that current populations may have come from other parts of Africa.

### **The "mitochondrial Eve"**

Genetic genealogy has even larger horizons. Genetic research has also identified the "mitochondrial Eve", a woman who would have lived in eastern Africa some 150,000 to 200,000 years ago, and who would be the ancestor of all humans who live on the planet today. Extraordinary harems have seen the light of day: a man who lived in Asia around the 13th century, probably Genghis Khan, is the ancestor of 8% of people living today in the country of the ancient Mongol empire, while a man having lived in Ireland in the 5th century, probably King Niall, is the ancestor of 9% of the Irish. And the identification of four women having lived in the Middle East in the 6th century, who are the ancestors of the Jewish Ashkenazi, has refuted the anti-semitic theory that Jewish migration to Europe would have been made up of men who took converted European women as wives.