Dear family members:

It is time for another email message to all of you. Since this story cannot be told effectively without pictures and since I don't know how to include multiple pictures into news articles on MyHeritage, I chose to write that message off-line, store it on my own server, and send you simply a link to it.

In this message, I wish to tell you a bit more about the DNA Y-67 test that both Al and I took. This is how it works. Our *genetic code*, everything that nature records about who we are, is stored in our DNA. The human DNA consists of a series of 23 pairs of chromosomes built up as a double helix. The chromosomes come in pairs, because we receive always one of each type of chromosomes from our mother and the other from our father.

One of the 23 chromosomes determines the sex of a child. It comes in two varieties: X for girls, and Y for boys, whereby the Y-chromosome is dominant. Thus, girls have two X chromosomes (X-X), one obtained from their mother and the other from their father, whereas boys have one X and one Y chromosome (X-Y), whereby the X chromosome is received from their mother and the Y is received from their father.

For genealogical research, the Y chromosome is of particular interest, because it is invariably passed from father to son. Thus if you are interested in following a family along the male line of heritage, which is much easier to do in our patriarchic society, because family names are passed down the male line of heritage, you can follow the Y chromosome. All Cellier of Swiss origins are descendants of one and the same male progenitor, and consequently, all male Cellier on the tree share into the same Y chromosome except for small variations (natural mutations).

Therefore, all of the male Cellier in our family tree have very similar Y chromosomes … and every male on this planet who has a Y chromosome very similar to the Cellier Y chromosome is related to us fairly recently along the male line of heritage, i.e., shares a common progenitor with us strictly along the male line of heritage. The more similar his Y chromosome is to ours, the shorter ago our common progenitor must have lived. Thus, we can use the structural distance between our respective Y chromosomes to estimate the distance in time of our common progenitor.

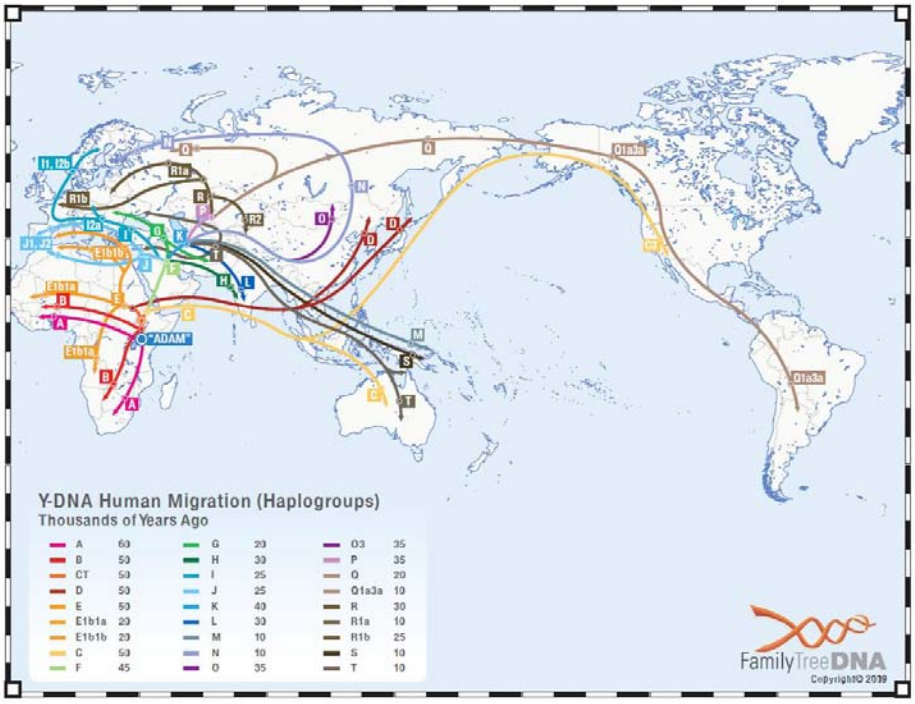
Our chromosomes are composed of many genes. Each gene consists of a number of alleles, which in turn are composed of triplets of amino-acids. The chromosomes store the information of who we are biologically. They determine our blood type, our eye color, the complexion of our skin, and many other features that characterize us as individuals.

In bio-genealogical research, we look at a number of different alleles making up our Y chromosome. The DNA Y-67 test looks at 67 different alleles along our Y chromosome and assigns a number to each of them that characterizes the combination of amino-acids found in each of these alleles in the testing individual.

How many mutations can we expect? Looking at 67 alleles, we note that, on average, there are about 10 different recorded variations for each of them. Thus, there are roughly 670 variations to be found. They all came about during the *very short* history of the human race.

The first *homo sapiens sapiens* (modern human) lived approximately 60.000 years ago in Eastern Africa, somewhere in the vicinity of Lake Victoria. For simplicity, let us call him Adam. Adam was our all progenitor, and he had a Y chromosome that led, through mutations, to all of the 670 different variations (of the 67 alleles of the Y chromosome that are being tested) that are in evidence today.

The deployment of variations of the Y chromosome through space and time can be depicted in a graph:



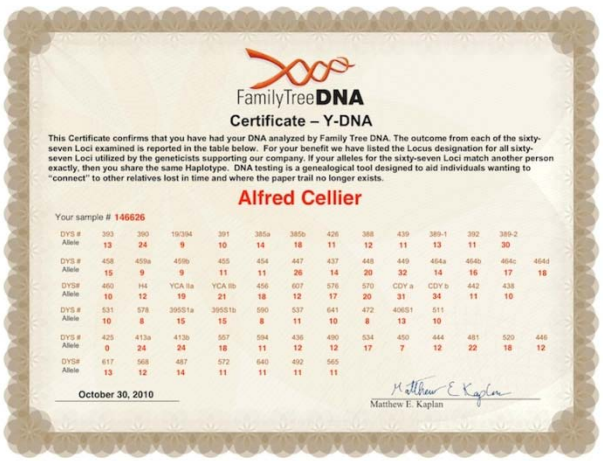
The Swiss Cellier all belong to the (orange) haplo-group E1b1b1, whereas those of the French Cellier who were tested so far belong to the (blue) Haplo-group I1, i.e., the common male progenitor of these two groups must have lived several thousand years ago, long before family names were established. Of course, we are much closer related to each other through female lines, because statistically, every European alive today is somehow a descendant of Charles the Great who lived 1200 years ago. Yet, the Y chromosome only takes into account the male line of heritage, and along this path, the two groups have not had a common male progenitor for several thousands of years.

As I wrote to you earlier, the Cellier of Nods and La Neuveville are no Huguenots. They lived in the region of Nods already before the reformation, and we are not any closer related to the Cellier of France than to any other European who goes by any other name.

How many variations can we expect between the Y chromosomes of different members of the Swiss Cellier family?

Since there are approximately four generations per century, the entire (very short) history of the human race is only 2400 generations deep. This leads to approximately 0.15 new mutations per generation. The actual number of mutations is a bit larger, because not every mutation is new. It is also possible to mutate back to a form that has already existed before. The true mutation rate (on the 67 alleles of the Y chromosome that are being analyzed) is in the order of 0.25 mutations per generation.

Since Al and I are 24 generations apart (12 generations up and 12 generations down), we would expect to see in the order of six differences between us. The test revealed our genetic distance to be eight, i.e., a little larger than one would expect, but the difference is not statistically significant.



FamilyTreeDNA

Certificate – Y-DNA

This Certificate confirms that you have had your DNA analyzed by Family Tree DNA. The outcome from each of the sixty-seven Loci examined is reported in the table below. For your benefit we have listed the Locus designation for all sixty-seven Loci utilized by the geneticists supporting our company. If your alleles for the sixty-seven Loci match another person exactly, then you share the same Haplotype. DNA testing is a genealogical tool designed to aid individuals wanting to "connect" to other relatives lost in time and where the paper trail no longer exists.

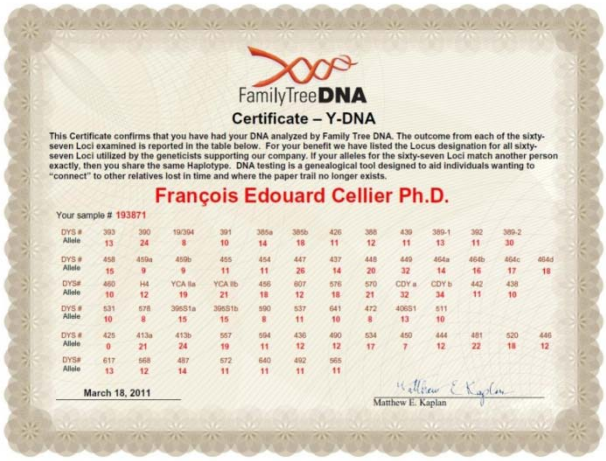
Alfred Cellier

Your sample # 146626

DYS #	393	390	19/394	391	385a	385b	426	388	439	389-1	392	389-2		
Allele	13	24	9	10	14	18	11	12	11	13	11	30		
DYS #	458	459a	459b	455	454	447	437	448	449	464a	464b	464c	464d	
Allele	15	9	9	11	11	26	14	20	32	14	16	17	18	
DYS#	460	H4	YCA IIa	YCA IIb	456	607	576	570	CDY a	CDY b	442	438		
Allele	10	12	19	21	18	12	17	20	31	34	11	10		
DYS #	531	578	395S1a	395S1b	590	537	641	472	406S1	511				
Allele	10	8	15	15	8	11	10	8	13	10				
DYS #	425	413a	413b	557	594	436	490	534	450	444	481	520	446	
Allele	0	24	24	18	11	12	12	17	7	12	22	18	12	
DYS#	617	568	487	572	640	492	565							
Allele	13	12	14	11	11	11	11							

October 30, 2010

Matthew E. Kaplan



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François Edouard Cellier Ph.D.

Your sample # 193871

DYS #	393	390	19/394	391	385a	385b	426	388	439	389-1	392	389-2		
Allele	13	24	8	10	14	18	11	12	11	13	11	30		
DYS #	458	459a	459b	455	454	447	437	448	449	464a	464b	464c	464d	
Allele	15	9	9	11	11	26	14	20	32	14	16	17	18	
DYS#	460	H4	YCA IIa	YCA IIb	456	607	576	570	CDY a	CDY b	442	438		
Allele	10	12	19	21	18	12	18	21	32	34	11	10		
DYS #	531	578	395S1a	395S1b	590	537	641	472	406S1	511				
Allele	10	8	15	15	8	11	10	8	13	10				
DYS #	425	413a	413b	557	594	436	490	534	450	444	481	520	446	
Allele	0	21	24	19	11	12	12	17	7	12	22	18	12	
DYS#	617	568	487	572	640	492	565							
Allele	13	12	14	11	11	11	11							

March 18, 2011

Matthew E. Kaplan

This means that there were no undocumented adoptions in either Al's or my male line of heritage, at least none outside the family (otherwise our genetic distance would be much bigger), and therefore, we now know what the prototype of a Swiss Cellier Y chromosome looks like. Furthermore, since Al and I are just about as far apart on the La Neuveville tree as we could possibly be, we now know that all of the Cellier in between the two of us are expected to have Y chromosomes that show small variations primarily in those few alleles in which Al and I differ.

It would be great if one of the male Cellier of Nods would decide to get tested also, as this would help to finally establish the link between our two branches of the family. I expect that his results will be very similar to those of Al and myself, i.e., the genetic distance of the Cellier of Nods to either of us is not expected to be much larger than the genetic distance between the two of us, because whereas Al's and my common progenitor lived in the first half of the sixteenth century, I strongly believe our all common progenitor to have lived in the second half of the fifteenth century, i.e., only about 50 years earlier.

If one of you should wish to take this test, please, visit the website of ***Family Tree DNA***.

What else can we do with these data? We can also turn the argument around. Everyone who has a Y chromosome that looks very similar to those of Al and myself, irrespective of the family name that this individual goes by, is likely to have a common progenitor along the male line of heritage who has lived not much earlier than a few hundred years ago.

For this reason, the software used by Family Tree DNA is comparing each tested individual with all other tested individuals in the database and is looking for "smart matches," this time not along the lines of similarity in names and dates, but rather in terms of similarity in their genetic footprint.

It turns out that the software discovered two close matches to Al and myself. One individual is called *Nicolas Junod*. He is originally from Lignières, a village in the Canton of Neuchâtel, half-way between Nods and La Neuveville but just on the other side of the Cantonal border, and his home even today is only a few kilometers away from the place of our origins. The other individual is an American going by the name of *Schiffley*.

Also the Schiffley family, due to the close similarity of their Y-chromosome, must have originated in the vicinity of Nods. We may assume that *Schiffley* is an Americanized version of *Chiffelle* or *Tschiffeli*.

The Chiffelle (also called Tschiffeli) are another old family of Nods, a branch of which moved in the mid fifteenth century to La Neuveville and established itself there, about 75 years before Al´s and my ancestor moved from Nods to La Neuveville.

The table given below lists our genetic distances:

	Distances					DYS	DYS	DYS	DYS	CDY	DYS	DYS
	Alfred Cellier	François Cellier	Junod	Schiffley		19	456	576	570	a	413a	557
	0	8	4	5	Alfred Cellier	9	18	17	20	31	24	18
	8	0	4	5	François Cellier	8	18	18	21	32	21	19
	4	4	0	3	Junod	9	18	18	20	31	22	19
	5	5	3	0	Schiffley	9	19	18	21	31	22	18
Sums:	17	17	11	13								

On the right side of the table, those seven alleles are listed in which the four of us differ (DYS 19 refers to the DNA Y-chromosome single-allele #19, etc.). On the left side, you find our relative genetic distances listed.

It turns out that Al and I are a bit further apart from each other than any other two pairs (with a relative genetic distance of eight). The closest matches are between Junod and Schiffley, whose relative genetic distance is only three.

If you add up the distances along each row or column, you find that Nicolas Junod gets the smallest total number (11), and therefore, his Y chromosome is in fact closest to that of our common progenitor.

How is it possible that two people by different family names have a common male progenitor? In the case of Nicolas Junod, we have a clue. Dr. Olivier Clottu:

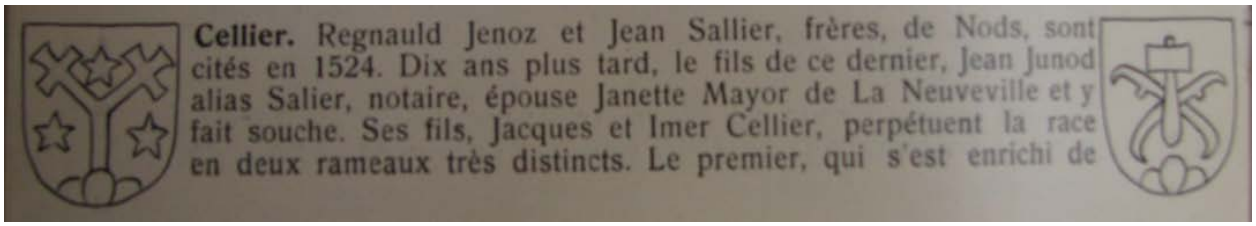
Reconnu bien au-delà de la région

Le Dr Olivier Clottu fut reconnu pour son œuvre d'historien mais aussi de généalogiste et d'héraldiste non seulement dans notre région : il fut nommé bourgeois d'honneur de Saint-Blaise en 1959 et même citoyen d'honneur de la ville de Salt Lake City, aux USA, en 1970. En 1974, il a obtenu, à Stockholm, le Prix Arvid Berhman pour l'ensemble de son œuvre. L'Université de Neuchâtel lui a décerné le titre de docteur ès lettres honoris causa en 1980.

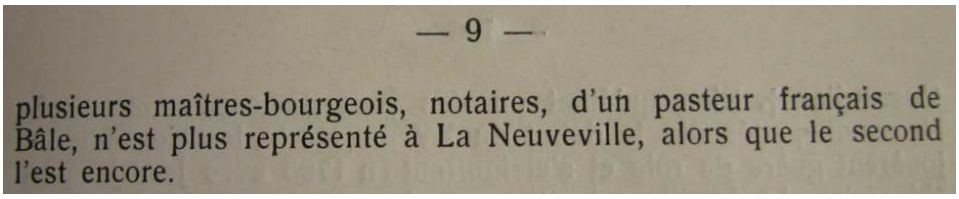
Il fut non seulement très attaché à Saint-Blaise mais aussi au Val d'Hérens où il a passé la plupart de ses étés dans son chalet de La Sage s'intéressant à son passé et son iconographie qu'il évoquera dans son livre paru en 1976 « Vieux pays d'Evolène, témoins présents et disparus ».

Villa, Val d'Hérens, Maison pleine, aquarelle Dr O. Clottu.

wrote in 1949 in an article entitled "Les familles de La Neuveville, leur origine et leur destinée" that he published in the *Actes de la Société Jurassienne d'Emulation* (I have the article in PDF format if anyone should want it) about the Cellier family:



Cellier. Regnauld Jenoz et Jean Sallier, frères, de Nods, sont cités en 1524. Dix ans plus tard, le fils de ce dernier, Jean Junod alias Salier, notaire, épouse Janette Mayor de La Neuveville et y fait souche. Ses fils, Jacques et Imer Cellier, perpétuent la race en deux rameaux très distincts. Le premier, qui s'est enrichi de



— 9 —

plusieurs maîtres-bourgeois, notaires, d'un pasteur français de Bâle, n'est plus représenté à La Neuveville, alors que le second l'est encore.

Let me translate:

> ***Cellier.*** *Regnauld Jenoz and* ***Jean Sallier****, brothers from Nods, were cited in 1524. Ten years later, the son of the latter,* ***Jean Junod alias Salier****, notary public, marries Janette Mayor of La Neuveville and establishes his family there. His sons, Jacques and Imer Cellier, perpetuate the family in two very distinct branches. The former branch, which has enriched itself by several mayor's positions, notary public positions, a pastor's position at the French church in Basel, isn't represented in La Neuveville any longer, whereas the latter still is.*

You find *Jean Junod alias Salier* listed on my tree as *Jehan Cellier* and his father *Jean Sallier* as *Jehan Seillyer*, because this is how they were mentioned in the 1914 book by Gross and Schnider: "Histoire de La Neuveville" on page 279. Although family names had been in use here in Switzerland since the thirteenth century, they weren't fully stable until the early sixteenth century.

It turns out that Jehan Cellier (or Jean Junod alias Salier) was Al's and my common progenitor. Al is a descendant of the first marriage of Jehan's son *Imer Cellier*, whereas my branch of the family derives from Imer Cellier's third marriage.

On the left side, Clottu sketched the family crest that was used by Jacques descendants, a branch that is meanwhile extinct, whereas on the right side, you find the family crest that is used by Al's and my branch of the family:

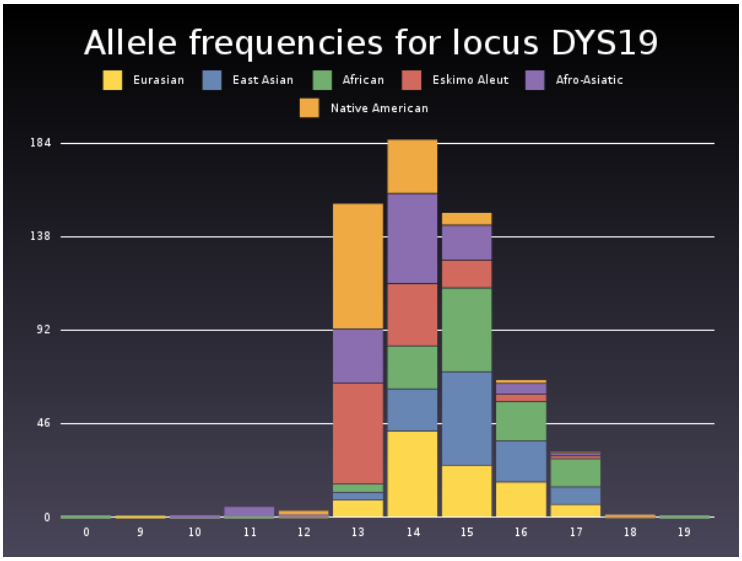
This family crest is prominently displayed on the walls of the citizen hall of La Neuveville together with the family crests of the other old bourgeois families of La Neuveville:

The above picture was taken by Al during his visit to La Neuveville last summer. Both family crests date back to the sixteenth century.

W.r.t. Schiffley (or Chiffelle), we don't know yet how he relates to us, but our common progenitor must have lived around the same time. One can use the relative genetic distance between two individuals as an estimator for the distance in time of when their common male progenitor must have lived.

My story is dragging on a bit, but it isn't finished yet. There are more interesting pieces of information that can be extracted from the data.

Looking at the individual alleles, it is possible to find statistics on how common the different variations are. For example, you find the following distribution concerning the allele DYS 19:



Most people exhibit variations of this allele numbered between 13 and 17. Yet, the Y chromosome of the Swiss Cellier is characterized by a #9 on this allele. In my branch of the family, there was even a mutation down to #8, which is so rare, it isn't even shown on the above graph. This seems to be a *new mutation*, but this is okay. The mutations shown in the Y chromosomes of "Kain" and "Abel," the sons of "Adam," were all new mutations, and new mutations still occur frequently.

In a way, this makes us lucky, because rare mutations of alleles sharpen the test for smart matches. Those few smart matches that are being found in spite of our rare genes will hardly ever turn out to be false positives.

Enough genetics for today! It's been fun! Greetings from

your devoted cousin

François