

From June 2016 Newsletter of the Middlesex Genealogical Society
<http://mgs.darien.org/newsletters.htm>

My 6,000-Year-Old Family Tree by Peter Biggins

Since I started working on family history in 2002, I have traced my patrilineal line back to my great great grandfather, Patrick Biggins, who was born in Ulster in 1807. There was a Hugh Beggan in County Cavan who may have been his father, but I have no idea when he was born. So, I have only gone back about 200 years.

In 2008, I started DNA testing at Family Tree DNA, a company headquartered in Houston, Texas. I eventually found that my Y-chromosome DNA matched seven men named Biggins, Bigham, Beggan, Beaghan, and Little. It turns out that these names all come from beag, the Irish word for little. I also found out that the eight of us matched men with names that ancient Irish genealogies say are descended from three brothers named Colla who lived in fourth century Ulster. This was all accomplished through a series of markers called STRs. An STR is a Short Tandem Repeat, or count of repeats at a physical location on the chromosome.

I also learned I had SNPs. A SNP is a Single Nucleotide Polymorphism, which is a change (or mutation) in the DNA code at a specific place on a man's Y chromosome. SNP is pronounced "snip."

I learned I had four SNPs: P312, L21, DF13, and DF21. These SNPs all occurred in that order thousands of years ago.

In the last few years, a new kind of Y chromosome testing has become available. It tests a large swathe of the Y chromosome. By testing a large swathe, many more SNPs could be identified, even ones that have occurred only recently. I ordered this new kind of testing when it first became available in 2013. I had it done by Family Tree DNA. They call the test "Big Y."

Through Big Y, I have found 49 SNPs, including the ones just mentioned, that take my patrilineal line back 6,000 years.

SNPs occur in a single man and are inherited by their sons, and their sons, and so on.

SNPs are rare. They occur on average once every four generations, or 120 years. So, my 49 SNPs take me back around 6,000 years.

SNPs occur randomly. Two SNPs can occur at the same time in one ancestor. Or there can be no SNPs for many generations.

Alex Williamson has created a "Big Tree" that reflects the results of Big Y testers and testers from a few other companies. His tree starts with the P312 SNP. As of March 2016, there were 2,342 testers analyzed by Alex Williamson who had the P312 SNP. Alex is an amateur genealogist with a PhD in particle physics. His Big Tree can be seen online at: ytree.net

The historical order of SNPs can be determined if there are multiple testers who have a SNP but only a subset has another SNP. My 49 SNPs fall into 12 groups that range in size from one to 20 SNPs. The oldest group contains two SNPs that were found in 2,342 testers. The next oldest group contains seven SNPs that were found in 1,646 of the 2,342 testers. We don't know the order of the two SNPs in the oldest group or the seven SNPs in the next oldest group, but we know the first group is older than the second group. As the number of testers increases over time, the 49 SNPs (and the 6,000 years) will stay much the same. But some of the new testers will be found not to have all the SNPs in the group, thereby subdividing the group. The 12 groups will increase, and the SNPs per group will decrease.

DF21 is estimated to be 4,700 year old. So, prior to Big Y, I had 4,700 years of unexplained ancestry. That's a pretty big "brick wall." Through Big Y, I learned of eight more SNP groups that take me down to a few hundred years ago.

6,000-Year-Old Family Tree. Following are the 12 SNP groups of my tree, with comments. Each group is named after one of the SNPs in the group. The labels include real rough time frames and rough place of origin.

Time frames are based on the number of SNPs in each group, assuming 120 years per SNP. (The number of SNPs and testers on Alex Williamson's Big Tree are shown in parentheses.)

P312 Man, 4120 BC to 3880 BC, Europe. P312 is the most common SNP today across much of Western Europe. (2 SNPs, 2,342 testers)

L21 Man, 3880 BC to 3040 BC, Western Europe. L21 is sometimes referred to as the "Atlantic Celtic" SNP. (7 SNPs, 1,646 testers)

DF13 Man, 3040 BC to 2800 BC, Western Europe. DF13 is common among members of the Middlesex Genealogical Society: Pete Kenyon, John Driscoll, Don Cavett, and Len Christie. (2 SNPs, 1,547 testers)

DF21 Man, 2800 BC to 2680 BC, Isles. A December 2015 study by scientists at Queens University Belfast and Trinity College Dublin identified the DF21 SNP in the bones of a man uncovered in a Bronze Age cist behind McCuaig's Bar on Rathlin Island off the coast of County Antrim in Ulster. The man was named Rathlin 1. His bones were carbon-dated back to 2025-1885 BC, but he had six SNPs downstream of DF21, so we estimate that DF21 occurred around 2700 BC. (1 SNP, 261 testers)

S971 Man, 2680 BC to 2320 BC, Isles. (3 SNPs, 85 testers)

Z3000 Man, 2320 BC to 80 AD, Isles. This long stem 80 generations is a fairly unusual situation. So far, none of the men in these generations had brothers whose current-day descendants have done Big Y. As a result of mutations during this long stem, four unique STR markers evolved: 511=9, 425=0, 505=9, 441=12. (20 SNPs, 80 testers)

Z3006 Man, 80 AD to 200 AD, Isles. The great grandfather of the Three Collas may have been Z3006 Man. (1 SNP, 60 testers)

Z3004 Man, 200 AD to 440 AD, Ulster. The Three Collas lived in this time frame. They fought in the Battle of Emain Macha in 331 AD. (2 SNPs, 56 testers)

S953 Man, 440 AD to 560 AD, Ulster. Men with the S953 SNP appear to be descendants of Colla Uais. (1 SNP, 23 testers)

BY516 Man, 560 AD to 1040 AD, Ulster. Two BY516 testers can trace their genealogy back to Lt. Brian McDonald of Co, Wicklow, Alasdair Og, Somerled, and Colla Uais. (4 SNPs, 14 testers)

BY3164 Man, 1040 AD to 1640 AD, Ulster. BY3164 is shared by Mark Bigham, FTDNA kit N86783, and myself, FTDNA kit 127469. Surnames were adopted in Ireland for the first time in the 11th and 12th centuries. As a result of mutations early in this period, one unique STR marker evolved for all eight in the Biggins/Beggan group: 413b=24. (5 SNPs, 2 testers)

17705431-C-T Man, 1640 AD to 2000 AD, Ulster or USA. Only I have this SNP so far. It could have originated with me or my known ancestors back to Patrick Biggins born in 1807, or an earlier Biggins/Beggan. It looks different from the others because no one has seen fit to name it. The eight digits indicate the location on the Y chromosome. The C-T indicates the mutation of a C to a T. Mark Bigham has three of the private SNPs, while I only have one. (1 SNP, 1 tester)

For more on my 6,000-year-old family tree, see: peterspioneers.com/bigginssdeepancestry.htm

Technical Note on Time Frames. Time frames are based on the number of SNPs. The last SNP group has only one tester (me), making its one SNP unreliable as an indicator of time frame. For purposes of the time frame for the last SNP group, therefore, the number of SNPs for that SNP group was increased from one to three. This raises the number of SNPs downstream of the Z3000 group to 16, which is the number of SNPs downstream of the Z3000 group for all 80 testers with the Z3000 group of SNPs. By way of reference, Mark Bigham, FTDNA kit N86783, has four SNPs in his last SNP group. The time frames are based on the number of SNPs. The years per SNP are set such that the DF21 SNP group fits the carbon-dated age of Rathlin 1 Man. That number is 120.