

How a DNA Project has produced discoveries in the Meates One-Name Study not possible with paper records alone

By Susan C. Meates



MORE AND more one-namers are fascinated by the "new genealogy" of DNA testing and introducing it into their one-name studies in an attempt to establish whether different families with the same surname can be connected together. In this special two-part feature, one of the Guild's American members, SUSAN MEATES, relates her extensive work on a DNA Project as part of the Meates One-Name Study.

THE MEATES DNA PROJECT now has over 200 participants in 15 countries. Using DNA testing, I have made many discoveries which would not have been possible with just the paper records.

These include:

- Determining who is related and who is not.
- Which surnames are variants.
- Discovering a previously unknown variant.
- Which surnames have evolved from a different origin.
- Identifying errors in the connections in family trees.
- Finding the ancestral homeland for one surname.
- Getting a much clearer understanding of the evolution of the surnames and the number of points of origin.

The project has been very exciting and interesting. The DNA Project has been of tremendous value to my Meates One-Name Study.

Background

My one-name study evolved from my genealogy research. When I began my family history research, all I had to work with was my father's name and his father's name, and no idea where my grandfather had come from or how or when he travelled to the USA. It took a lot of effort, and some luck, to discover the family had gone from Ireland to Canada, and then my grandfather emigrated to the US.

Meates is a very rare surname. With the advent of the Internet and online phone books, I discovered in 1996 that the only households in the US were those of myself, my mother, and brother. I searched the Internet for six months, and didn't find a single Meates. As the popularity of the Internet grew, I eventually found a few Meates. They were located in Ireland, England, Wales, Australia and New Zealand. The New Zealand Meates all descend from

an immigrant from Ireland and the Australian Meates descend from an immigrant from London.

After years of research, I have determined that there were five Meates lines whose most distant ancestor resided in Ireland, one Meates line whose most distant ancestor resided in Worcestershire and then London, and one Meates line in Wales. Are all these Meates related?

Starting the DNA Project

In 2000 I had my first Meates visitor, who was then living in London and whose family tree went back to Ireland. It was a shock to discover that we both had the same eyes and we wondered if we were related. Since there were DNA tests for paternity, we wondered if there were DNA tests that would tell us if we were related.

I started hunting on the Internet and found the research by Professor Brian Sykes, utilising DNA testing of the Y chromosome for men with the surname Sykes, and a small company in Houston, Texas, called Family Tree DNA. My impression from the websites was that DNA testing was very complicated, so I just bookmarked the two sites and the priority of DNA testing dropped to the bottom of my list.

In December, 2001, tragedy struck. My brother was killed in an automobile accident just six weeks after my mother died. My brother was the last known male in my family tree back to 1790. As I drove around aimlessly trying to cope with the events, I remembered that I had wanted to start a DNA Project. If I didn't get a sample from my brother, I could never find out about my family tree.

Frantic, I raced back to my computer, to find the bookmarks for DNA testing. Struggling to make sense of the information and choose a vendor, I remembered Chris Pomery's portal and turned to the website for help. I also sent an e-mail to Family Tree DNA, since they were the closest vendor and had the most surname projects listed at Chris's portal. In less than 20 minutes, even though it was a Saturday night just before midnight, I got a response from Family Tree DNA and then a phone call. They would air out a test kit to the medical examiner in Maryland.

At that point in time, in December, 2001, there were two different tests of the Y chromosome available from Family Tree DNA. One test was for 12

markers, and the other test was for 21 markers. Since I could upgrade the 12 markers to 21 markers at a later date, it didn't really matter which I selected. Family Tree DNA stored the DNA samples for 25 years, so I would have my brother Richard's sample on file if any additional tests were developed in the future. I decided to select 12 markers. Today, Family Tree DNA offers a 12 marker, 25 marker and 37 marker test. The standard for my DNA Project is now 37 markers.

Sample

After getting a sample from my brother, the next step would typically be to validate the result for the family tree by testing a distant relative in the family tree. Since there were no other known males in my tree back to 1790, I had to skip this step.

The value of the test comes from comparing results of different men. A string of 12 or 25 numbers by itself doesn't have much value. Therefore, I had to find some other Meates to take the test. My first objective was to test descendants from the other Meates lines, before I looked at variants such as Mate, Mates and Meats. I decided to start with approaching the Meates men who had shown interest in DNA testing back in 2000.

I sent off my first e-mail asking a Meates male to participate. In less than a day, I had my first participant, who was representing an Ireland Meates line.

In early 2001 I received the result for my brother, which is shown below:

12 marker result for Richard K. Meates
12 22 15 10 13 15 11 14 11 12 11 28

Table 1 – 12 marker result for Richard K. Meates

The result provided from a Y DNA test is a count of short repeats of DNA found at specific locations on the Y chromosome. These locations are called markers. The Y chromosome is found only in men. Men have an X and a Y chromosome, and females have two X chromosomes. Scientists have discovered that a small portion of the Y chromosome is passed from father to son, typically unchanged. By testing this small portion you can compare the results of two men and determine if they had a common ancestor and approximately when the common ancestor occurred.

Figure 1 shows the Y chromosome being passed from father to son in each generation. The progenitor in the example family

tree had three sons and a daughter. The progenitor's Y chromosome is represented by the solid black square. The daughter would not inherit the Y chromosome.

The first son of the progenitor had only daughters, so the Y chromosome was not passed down in this branch after the son. The second and third son had sons, who had sons, so today there are five surviving males in this tree. For this example family tree, the ideal situation would be to test a descendent of the second and third son. Most family trees

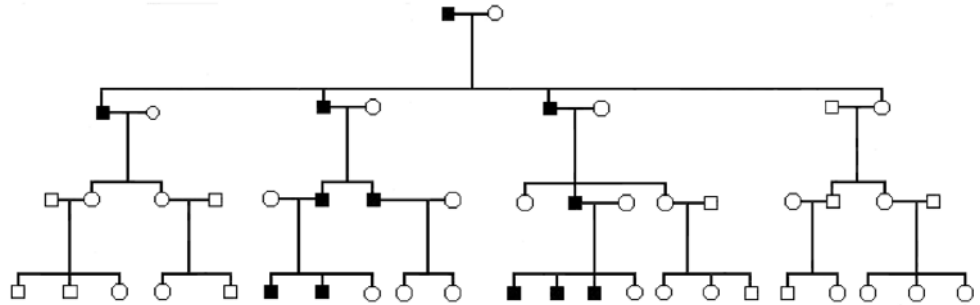


Figure 1 – a small section of the Y chromosome is passed from father to son, virtually unchanged. The solid squares above illustrate the path of this section of the Y chromosome

have more generations and breadth. Therefore, in those cases, the two most distant males are tested for each family tree. The reason to test two males is to validate the result for the tree. In addition, the result for the progenitor of the family tree would be determined.

Brick wall

For Ireland, the five Meates family trees had all hit a brick wall in the genealogy research in either the early 1800s or late 1700s, due to the lack of paper records. A primary relevant parish register was destroyed in the fire at the Four Courts Building in 1922. In addition, except for a few fragments, no census records exist for Ireland prior to 1901. Documentary evidence will probably never be found for these lines to determine whether any of the lines connect. DNA testing was the only hope for us to determine if any Meates of Ireland were related.

In the early days of the DNA Project, when the vendor upgraded their 21 marker test to a 25 marker test, a decision was made to set the standard for my project as 25 markers. The additional cost for the participants was small compared to the additional information available from the test.

It was an exciting day when the second result came back from the lab. My brother and another Ireland Meates line were an exact match at 25 markers, as shown in Table 2 below. This type of match is also called a 25/25 match, or a genetic

The first two results
Richard Meates 12 22 15 10 13 15 11 14 11 12 11 28 15 8 9 8 11 24 16 20 29 12 14 15 15
Greg Meates 12 22 15 10 13 15 11 14 11 12 11 28 15 8 9 8 11 24 16 20 29 12 14 15 15

Table 2 – the first results for two male Meates

distance of 0. This DNA evidence showed that we shared a common ancestor, which the scientist call the Most Recent Common Ancestor (MRCA). Though the DNA does not identify the common ancestor, it does provide a time frame for this person. The time frame is expressed as a probability for different time frames (Table 3, below).

Time to the Most Recent Common Ancestor						
25/25 Exact match						
Time Frame	100 years	200 years	300 years	400 years	500 years	600 years
Probability	61.17%	84.92%	94.15%	97.73%	99.12%	99.66%

Table 3 – time probability to the Most Recent Common Ancestor for a 25/25 match

Since we knew our trees did not connect after 1854, when the one line emigrated to Australia and then New Zealand, we therefore knew that the common ancestor occurred prior to this time. According to the time chart above, the common ancestor most likely occurred between 1500 and 1850.

Participants in a DNA Project are typically provided with a Certificate of Results, as shown in Figure 2 (right), and a page at the vendor's website where they can view their result, see whom they match and get additional information, such as the time to the Most Recent Common Ancestor.

Upgraded

When a 37 marker test became available, the participants upgraded. A 37 marker test provides additional information and will estimate more precisely the time to the common ancestor. The 37 marker test result for the first two participants went from a 25/25 match to a 37/37 match. The probability of the time frame to the common ancestor was impacted by these additional markers matching. At a 25/25 match, the 99% probability doesn't occur until 500 years. At 37 markers the 99% probability occurs at 300 years. This information indicates that the common ancestor between my brother and another Ireland Meates line occurred most likely in the last 300 years.

Figure 3 (below) shows the analysis that is available to the participants, as well as the project

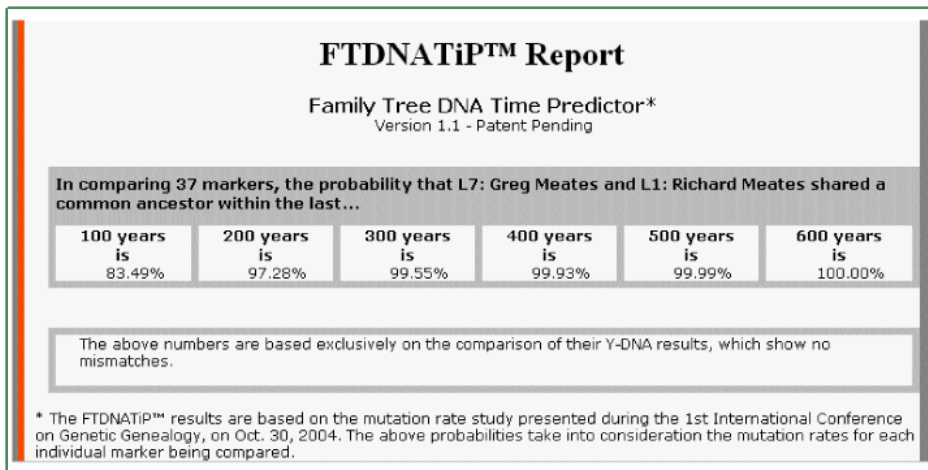


Figure 3 – time to Most Recent Common Ancestor at 37 markers

manager. This type of analysis is also helpful in identifying mistaken connections in family trees.

After receiving the first two results, it became easier to recruit participants. Over several months, results came back for all five lines of Meates with the progenitor in Ireland. These results are shown in Table 4 (opposite page).

The two numbers highlighted in blue are called mutations. We know they are mutations, since multiple persons

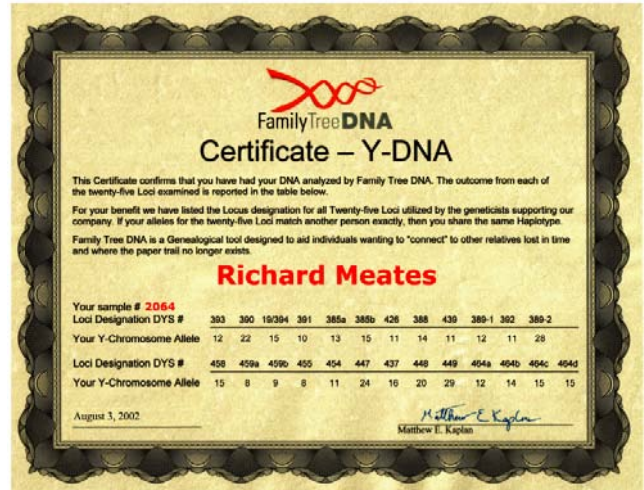


Figure 2 – Results Certificate for a 25 marker Y test

representing different lines have one result for a marker and only one line has another result. A mutation is the scientists' word for change. When a male is created and the segment of the Y chromosome is being copied, occasionally an error occurs, which results in more or less copies of a short, repeated segment of DNA at a location. This mutation is then passed down to the males in future generations.

Mutations can occur in current generations or have occurred in past generations. Mutations are estimated to occur about every 500 generations per marker. Mutations that occur in the distant past are very valuable for identifying branches off the ancestral tree.

Therefore, I needed to investigate these mutations to determine when they occurred. Did the mutations occur in current generations or in the past? If the mutations occurred in current generations we would consider them "resolved" and not factor them in to our analysis of the genetic distance, or degree of relatedness, of the five family trees.

In the beginning of the Meates Surname Project, with

the first five participants the validation step had been skipped. Validation is where you also test a distant male in the family tree. If this step had been done, then the mutations may have been automatically resolved by testing others when a mutation is found until you identify the result for the progenitor of the family tree.

To accomplish both validation and mutation resolution, the next step was to test additional

25 marker results: five Meates lines with the progenitor in Ireland																								
12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15
12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	28	12	14	15	15
12	22	15	10	13	15	11	14	11	12	11	28	16	8	9	8	11	24	16	20	29	12	14	15	15
12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15
12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15

Table 4 – 25 marker results for 5 Meates lines with the progenitor in Ireland

males. As a result of this testing, I was able to determine that both the mutations shown in Table 4 occurred in current generations. One mutation occurred with a participant and the other mutation occurred with that participant's father.

25 marker results: ancestral result for five Ireland Meates lines																								
12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15
12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15
12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15
12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15
12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15

Table 5 – 25 marker results, ancestral result for 5 Ireland Meates lines

Therefore, these mutations are not considered in our analysis. These mutations are considered resolved. With the mutations resolved, we have also established the ancestral result for each line. The ancestral result is the result for the progenitor of each line. All Meates lines with the progenitor in Ireland are now a 25/25 match, as shown in Table 5.

Expanding the project

It was now time to find out if the Meates family tree traced back to London/Worcestershire was related. Finding out this information would be very

25 Marker Results: Meates of Ireland and Meates of London																									
Ireland Meates	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15
London Meates	15	23	15	10	15	16	13	13	11	14	12	30	16	8	9	11	11	26	15	20	29	11	11	14	16

Table 6 – 25 marker results for Meates of Ireland and Meates of London

helpful, to determine whether to keep looking for documentation of a connection. Two participants were found for the London Meates family tree. Their result matched each other, identifying the result for the progenitor of the London Meates. As

25 marker results: Meates of Ireland and Mates of Ireland ancestral result																									
Ireland Meates	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15
Ireland Mates – Wicklow	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15
Ireland Mates – Kildare	13	24	14	11	11	14	12	12	12	14	13	30	16	9	10	11	11	25	15	18	30	15	15	17	17

Table 7 – 25 marker results for Meates of Ireland and Mates of Ireland

you can see from Table 6, the Ireland Meates and the London Meates aren't related. This was very interesting news. Even though they shared the same rare surname, they aren't related.

After these exciting discoveries, the next step was to postal mail those with the surname Mates in Ireland, to find participants. The goal was to determine if the Mates of Ireland were related to the Meates of Ireland. From the parish registers in the

1700s, it looked like possibly some Meates became Mates, but the evidence was inconclusive.

At the same time, there were many migrations in and out of the parish due to the coal mining industry. This factor, combined with the lack of other Ireland records such as wills, made it impossible to

draw a firm conclusion. There are multiple Mates lines with the progenitor in Ireland. Many of these lines left Ireland during the famine in the mid-1800s, so finding the lines today elsewhere in the world was often difficult.

Mates is a surname with multiple points of origin in multiple countries, so a Mates in the USA could be from Ireland or Bohemia or Germany, or elsewhere. Eventually, participants were found to represent each Mates line with a progenitor in Ireland.

After tracking down the last Mates needed for the Ireland Mates trees, whom I found in Romania, we then had the results for the Ireland Mates. In Table 7 the lines have been validated and any mutations found were resolved as occurring in current generations. One result is shown for all the Mates lines that have a progenitor in County Wicklow, since they all match.

As you will see from the chart, the Ireland Meates and Mates are all related, except for the line to County Kildare. This Mates line just appears in Ireland in the early 1800s. I expect eventually, as Mate and Mates are tested in other countries, to

find a match for this line. If a match isn't found, then most likely an illegitimate birth

occurred where the male son took on the mother's surname of Mates, or an informal adoption occurred.

Since the above testing, two more Ireland Mates lines have been discovered in the USA. It is believed

that they both go back to Arklow parish in County Wicklow, for which the parish register was destroyed in 1922. The DNA test result shows that both these new Mates lines are also related to the Meates/Mates of Ireland.

The results from DNA testing Meates and Mates lines of Ireland was very informative. All the family trees are related, except for the Mates whose progenitor was in County Kildare. Most likely, due to the destruction of records, I will never find any supporting documentation to connect these family trees. The participants in the DNA Project were thrilled with finding out that they were related. Some had spent decades looking for any records to take their tree back further or to find a connection to another Meates tree.

The earliest occurrence of the surname I have found so far in Ireland is in 1708. From the start of Ireland civil registration to 1995 there are a little over 700 Meates/Mates events registered. In the early years of civil registration, there were often gaps as long as 18 years with no events. This evidence, plus the population of Meates and Mates in Ireland, indicate they came from somewhere else.

To find the answer to where they came from, it was time to start DNA testing the surname Meats. This surname is found in England and Wales. From research, Meats lines had been established. These family trees were traced to Derbyshire, Nottinghamshire, Herefordshire, Gloucestershire and Wales. There is also a Meates line in Wales where the surname is recorded as Meats when the family first

line. For example, the surviving male for the Meats of Gloucestershire was found in the Republic of South Africa. The results for the five Meats lines and the Meates of Wales are shown in Table 8.

The Meats of England and Wales are related to the Meates/Mates of Ireland, and share a common ancestor. This was a very exciting discovery. It would be easy to assume from the surname that they were related. It would also be easy to assume the Meates of London are related but they aren't. DNA testing provided evidence that hadn't been found in the paper records. The Meates of Wales aren't related to anyone. This also was quite interesting information.

The next step of the project was to test the surnames Mate and Mates with the progenitor in the UK. One expectation is that a match might be found for the London Meates, who just appear in Worcestershire in the 1700s and later migrate to London. In Worcestershire, the surname is recorded as Mietts, Meiats, and Mates. The Mate and Mates lines tested so far do not match the London Meates.

In a search for a match for the London Meates, the surname Matt and Matts are now being considered as perhaps the prior form, and males with those surnames are being contacted to participate. From a frequency distribution study, the surname Matts appears to have originated in Warwickshire, so a migration to Worcestershire would be feasible.

There are quite a few lines of Mate and Mates in the UK and testing is continuing. For the lines tested to date, there are two Mate lines and one Mates line that match the above Meats/Mates/Meates group, and seven other different results. The majority of these trees that don't have matches just appear in London and migrations from Continental Europe are suspected.

This theory will be verified or determined to be incorrect later in the project when testing is completed for all relevant surnames and family trees globally. It is also possible that some family trees with the surnames Matt or Matts

evolved to Mate or Mates. The next issue of the Journal will carry Part 2 of this article, which covers many more exciting discoveries.

These include the information from upgrading all tests to 37 markers, where a higher mutation rate results in mutations which define major branches in the ancestral tree back to the adoption of the surname, as well as combining DNA testing with research in early records to discover the ancestral homeland and unknown variants, as well as valuable information discovered about the evolution of the surname. ○

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<p>25 Marker results: five Meats lines ancestral result 12 22 15 10 13 15 11 14 11 12 11 28 15 8 9 8 11 24 16 20 29 12 14 15 15 12 22 15 10 13 15 11 14 11 12 11 28 15 8 9 8 11 24 16 20 29 12 14 15 15 12 22 15 10 13 15 11 14 11 12 11 28 15 8 9 8 11 24 16 20 29 12 14 15 15 12 22 15 10 13 15 11 14 11 12 11 28 15 8 9 8 11 24 16 20 29 12 14 15 15 12 22 15 10 13 15 11 14 11 12 11 28 15 8 9 8 11 24 16 20 29 12 14 15 15 Meates/Mates of Ireland ancestral result 12 22 15 10 13 15 11 14 11 12 11 28 15 8 9 8 11 24 16 20 29 12 14 15 15 Meates of Wales 13 23 14 10 14 14 11 14 11 12 11 27 15 8 9 8 11 23 16 20 28 14 14 16 16</p>
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Table 8 – 25 marker results for Mates, Meates and Meats

arrived. There is also a Meats family tree in France who trace their tree back to Nottinghamshire.

The same approach was followed that worked so well for Ireland. For each Meats family tree, at least two distant males were needed to test. Postal mailings were used to find participants who were not already known. Most of the people who responded had e-mail. It is easier when a participant has e-mail, though not essential.

Participants are mailed a test kit by the vendor, with a short release form to sign that enables them to participate in matching, where they see the name and e-mail of whom they match and the other person sees their name and e-mail.

To test all the Meats trees, a global hunt was sometimes required to find a surviving male for a

DNA testing of tremendous value in sorting out variants in my one-name study

By Susan C. Meates



IN THE last issue of the *Journal* (January–March 2006) SUSAN MEATES, one of the Guild’s American members, related her extensive work on a worldwide DNA Project as part of her Meates One-Name Study. In this second article, Susan describes more of her investigations. She also relates how DNA Projects are producing more information for one-namers.

THE FIRST part of this article covered the start of the DNA Project, through the testing of the surnames Meates and Meats for all family trees worldwide, and the surname Mates for those trees that go back to Ireland. Testing had just begun for Mate and Mates family trees that go back to the UK. All these test results were for 25 markers.

At about this time, when the Mate and Mates of the UK started to be tested, the vendor, FamilyTreeDNA expanded their product, offering to include a 37-marker test. These additional markers were expected to provide more differentiation between family trees. Since the vendor provides 25 years of storage with each test, it was easy for the participants to upgrade without requiring another test kit. This feature was also invaluable for deceased participants, such as my brother.

The results at 37 markers was very interesting, as shown in the chart below:

The important mutations, which are called a defining mutation, are the mutations highlighted in yellow. These mutations occurred in the distant past and signify major branches off the ancestral tree.

Since all the participants, such as all the Meates of Ireland, have the same result for a marker, such as the 20 shown in yellow, why is this considered a mutation? The ancestral result for each line or family tree is compared to the ancestral result of the progenitor of the surname, which is shown above the dashed line in Table 1. The result for the progenitor of the surname is a calculated result, which takes into account the result for the participants in the project with various variant surnames, as well as results for other surnames, with whom these participants are related prior to the adoption of surnames.

Faster rate

At 25 markers, the ancestral result for the progenitor of the surname is easy to calculate, and can be done from participant results. The additional 12 markers in the 37 marker result mutate at a faster rate, and it is difficult to determine the ancestral state for the progenitor of the surname. For this reason, the results from other surnames with whom these lines are related prior to the adoption of surnames are also used.

The one mutation shared by all the Ireland Meates and Mates shows that they all descend from

Ancestral Results at 37 Markers

Ancestral	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15	10	10	20	21	14	14	16	19	34	35	12	10
Ireland Meates	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15	10	10	20	21	14	14	16	19	34	35	12	10
Ireland Meates	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15	10	10	20	21	15	14	16	19	35	35	12	10
Ireland Meates	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15	10	10	20	21	14	14	16	19	34	35	12	10
Ireland Meates	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15	10	10	20	21	14	14	16	19	34	35	12	10
Ireland Meates	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15	11	10	20	21	14	14	16	19	34	35	12	10
Ireland Mates	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15	10	10	20	21	14	14	16	19	34	35	12	10
UK Meats	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15	10	10	19	21	14	14	16	19	33	35	12	10
UK Meats	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15	10	10	19	21	14	14	16	19	33	35	12	10
UK Meats	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15	10	10	19	21	14	14	16	19	33	35	12	10
UK Meats	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15	11	10	19	21	14	14	16	19	33	35	12	10
UK Meats	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15	10	10	19	21	14	14	15	19	33	35	12	10

Table 1 – Ancestral results at 37 markers. Mutations that were resolved as occurring in current or identified generation are not shown. By removing the mutations that occur in current generations from consideration, the analysis becomes easier since ancestral results are compared

Cover feature

one man who lived after the progenitor of the surname. Most likely, the man who migrated to Ireland had this mutation. The mutation occurred either with his birth, or a prior generation. If we find the mutation in any other trees, we will have a clue as to where to attach the Ireland Meates/Mates to the ancestral tree.

The Meats also all have a defining mutation, a different mutation which is also highlighted in yellow. This defining mutation shows that all Meats descend from one man who lived after the progenitor of the surname. The surname Meats is first found in Derbyshire and later in the other counties.

Green mutations are suspected to have occurred in recent generations, but there are no surviving males to test to determine if this assumption is correct. The mutations in blue are expected to have occurred in the last 200 years, plus they are suspected to be parallel mutations, where the same mutation occurs in two different family trees.

Ancestral homeland

As the testing of Mate and Mates proceeded in the UK, research was undertaken to find the ancestral homeland for the Meates of Ireland. Starting with the 1881 UK census and working back in time, frequency distributions of the various surnames were prepared. The surnames included Mate, Mates, Meates and Meats. The results were inconclusive. From parish register data, frequency distributions were then prepared for the surnames Meat and Meate. The results clearly and overwhelmingly indicated Staffordshire.

A study of Staffordshire parish registers showed Meat and Meate families who seemed just to disappear, especially during the late 1500s and early 1600s. As I read through one parish for about the 20th time, it seemed to me that the Meate family that was there from 1561 to 1599 might have become Meyott after the curate change in the early 1600s. The other possibility is that the family moved out of the parish and the Meyott family moved into the parish, just as the curate changed.

Following the Meyott family further forward in time, it then seemed that this family was turning into Myatt in the 1700s. Could Myatt and Meates really be variants?

I decided to DNA-test five random Myatt males from different Myatt lines. Two of the participants currently resided in Staffordshire and three were in the USA. Of those in the USA, one had no idea of their origin, and two thought their family tree went to Staffordshire.

The test results showed that Mate, Mates, Meates, Meats and Myatt are variant surnames! As a

result of this discovery, the DNA Project was expanded to include testing of all Myatt lines. The discovery regarding the Myatt surname also has a downside – the Myatt population in the 1881 census of Britain is far greater than the Meates/Meats/Mate/Mates population. Therefore, the DNA Project includes the Myatt surname, though my one-name study does not.

Testing the various Myatt lines is providing very interesting information, which will later be helpful to determine how the different lines of Mate, Mates, Meates, Meats and Myatt connect to the ancestral tree. Some Myatt lines have defining mutations which will provide more information about the ancestral tree, once all Myatt and Myott lines are tested. In addition, one Myatt line has a different result and is not related. This DNA test result could either indicate that the surname evolved from two origins or an illegitimate birth or informal adoption occurred in the past. An answer wouldn't be found until many more Myatt lines are tested.

Further study of the Staffordshire parish registers has shown a slew of variants, including Meot, Miot, Miat, Mayte, Mete, Meote, Meyott, etc. Most of these variants did not survive to the present day.

Research in early records show the earliest recording of the surname in 1281 as Mayot. In the 1300s and 1400s, the surname appears stable as Mayot, Mayott, and Mayote. In the 1500s many different forms of the surname arose, including Meate, perhaps as a result of the Great Vowel Shift.

Managing a DNA Project

As a DNA Project Administrator, I have access to pages at the vendor's website which provide tools to help me manage the project, such as a list of members and a Genetic Distance Report. Another valuable tool is the analysis for the time frame of the common ancestor. For example, the Meates of Ireland were shown to be related to each other within 300 years at 37 markers. When comparing the Meates of Ireland to one Mate line of England, the time frame is most likely within 400 years.

The recent announcement of the Genographic Project by National Geographic and IBM should make it easier to recruit participants to a DNA Project. The Genographic Project is open to any participant anywhere in the world, and will be extensively marketed by National Geographic, including media coverage. In the short time frame since the project was announced on April 13, 2005, over 100,000 public participants have purchased a test kit.

The primary objective of the Genographic Project

Results for Meates and Myatt

Meates	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15	10	10	20	21	14	14	16	19	34	35	12	10
Myatt	12	22	15	10	13	15	11	14	11	12	11	28	15	8	9	8	11	24	16	20	29	12	14	15	15	10	10	19	21	14	14	16	19	34	35	12	10

Table 2 – results for Meates and Myatt, showing they are variant surnames

is to test over 100,000 members of indigenous populations around the world in order to map the migration of ancient humans. The project is also open to public participants.

DNA testing has provided fascinating information about the evolution of the various surnames in my project and more information will be discovered as testing continues. From the testing performed so far in the DNA Project, combined with genealogy research, it has been determined that there is a large group who evolved from the surname Mayott in Staffordshire. The Mayott surname evolved to many different forms and stabilised to the forms Mate, Mates, Meates, Meats, and Myatt. These forms have been confirmed with DNA testing.

No match

The Meates in London and the Meates in Wales don't match each other or any one else. Most likely, these two forms represent an evolution from a different origin. A DNA match will be found eventually for these two family trees. At the current time, the Mate and Mates trees of England are being tested looking for a match, and testing has begun for Matt and Matts trees.

As the numerous Myatt and Myott family trees are tested, I expect to be able to determine if there were multiple origins for the surname, or an illegitimate event or an informal adoption.

Testing of Mate and Mates family trees globally is moving along. Mate and Mates are surnames with multiple points of origin in multiple countries, so multiple different results were expected. At the end of the project, it will be determined how many different origins occurred. The Miot and Miott surname is also being tested, as well as the Mayot and Meat surname of France. In the case of Miot, the results have been helpful in sorting out the records in Colonial South Carolina, where both the surname Myatt and Miot are found.

Conclusions

DNA testing has been of tremendous value to my one-name study, and has provided information about the evolution of the surnames that I would not have figured out from the records alone. Testing has also helped my family history research, such as determining the prior surname and location for families that migrated, and with sorting out unrelated families in the same location.

DNA testing is also an excellent tool to identify mistaken connections in a family tree. Due to the frequency of the Myatt surname, several mistaken connections have been identified in contributed family trees.

Combining the knowledge from DNA testing with the genealogy research has provided many fascinating discoveries. The testing provided proof that Meates and Myatt were variants. We now know all Ireland Meates/Mates descended from one man who lived after the progenitor of the original surname.

We also now know that all the Meats are related and descended from a man who lived after the progenitor of the original surname. Knowing that the Meates of Wales aren't related to any Meates or variant is important knowledge to prevent mistaken connections when tracing their family tree back in time.

More to come

There are still many more discoveries to come. Here are just a few questions waiting to be answered...

- What was the prior surname from which the surname Meates evolved for the Worcester/London family tree? Was it from Mate or Mates, which appear to have multiple origins around the UK? Or was it from Matt or Matts?

- Are there two points of origin for the Myatt surname?

Are those with the Myott surname related?

- Did the surname Mates also evolve from any Matt or Matts lines?

- Are there any other forms of the surname that evolved from Mayot?

- Are any of those with the Meat surname or the Miot surname in France related?

DNA testing has been of tremendous value to my one-name study. ○

For further information

Article about the Meates DNA Project:

http://www.familytreeDNA.com/facts_genes.asp?act=show&nk=3.6

Website: <http://www.meates.org>

Vendors:

FamilyTreeDNA.com

Relativegenetics.com

DNAHeritage.com

Genographic Project:

<http://www5.nationalgeographic.com/genographic/index.html>

Free monthly educational newsletter from FamilyTreeDNA:

<http://www.familytreeDNA.com/fgregister.asp>

Past Issues of the FamilyTreeDNA newsletter:

http://www.familytreeDNA.com/facts_genes.asp?act=past

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