THE CARDEN DNA PROJECT

In September 2008 we held a Carden Gathering near Brighton, England, on the tenth anniversary of the first major Carden Gathering, which took place in Cheshire in September 1998. Each of these Carden Gatherings was attended by about 150 family members including many from USA and Australia. More details can be found at

http://cardenhistory.blogspot.com/
and http://cardengathering.blogspot.com/.

Given below is a summary of a talk on the Carden DNA Project which I gave at the Gathering.

It is with considerable diffidence that I offer this document for publication in the Members' Room alongside other much more impressive documents by David Pike, Hugh Cave, John Creer and Chris Pomery. Perhaps one day I, or our recently appointed joint administrator Eddie Carden of USA, will produce a more adequate document.

Arthur Carden (Member 2773)
16 February 2009

Report on a talk given by Arthur Carden on 13th September 2008, brought up to date.

Introduction

Towards the end of 2001 six of us decided to send DNA samples to Oxford Ancestors for analysis. The others, besides myself, were Ron (of the Whitstable branch), Bill (Sgt George), David (Brighton), Ernest (Winsford) and Roger (Loraine). We were pioneers, certainly among the first 30 or so surname groups to experiment with the use of DNA for genealogy. The results were very exciting.

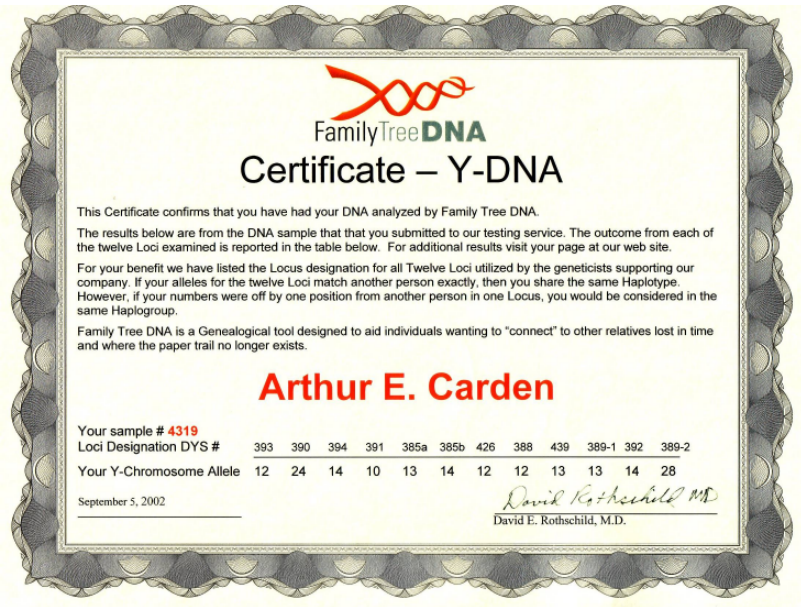
What is all this about?

Two particular parts of the DNA double-helix are called chromosomes. Everyone knows that men have both X and Y chromosomes (XY) and women two X chromosomes (XX). These are known as the sex chromosomes. The details of each man's Y chromosome is passed on, almost unaltered, to his sons. Since there are an immense number of differently constructed Y chromosomes, for two men to have identical Y chromosome details they must either be father and son, or more likely they share a common ancestor who has passed on his Y chromosome details to both of them. Sorry, ladies, this only works for men, but there is another DNA portion which more recently has been used to investigate maternal links.

Testing the Y chromosome is tremendously useful for genealogy, as it enables us to determine if two men have a common ancestor and an approximate time frame to this common ancestor. We only make use of a tiny portion of the millions of parts of a whole Y chromosome, in fact we use what is called 'junk' DNA because it has no discernable part to play in the design of an individual person. This tiny portion contains none of the parts used, for instance, in criminal investigations, so no one should worry on that account.

This tiny portion is analysed and the result is shown as a string of numbers.

Here is a certificate sent to me in 2002 by FTDNA, with, enlarged below, the figures on the certificate –



FamilyTreeDNA

Certificate – Y-DNA

This Certificate confirms that you have had your DNA analyzed by Family Tree DNA.

The results below are from the DNA sample that that you submitted to our testing service. The outcome from each of the twelve Loci examined is reported in the table below. For additional results visit your page at our web site.

For your benefit we have listed the Locus designation for all Twelve Loci utilized by the geneticists supporting our company. If your alleles for the twelve Loci match another person exactly, then you share the same Haplotype. However, if your numbers were off by one position from another person in one Locus, you would be considered in the same Haplogroup.

Family Tree DNA 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.

Arthur E. Carden

Your sample # 4319

Loci Designation DYS #	393	390	394	391	385a	385b	426	388	439	389-1	392	389-2
Your Y-Chromosome Allele	12	24	14	10	13	14	12	12	13	13	14	28

September 5, 2002

David E. Rothschild, M.D.

393	390	394	391	385a	385b	426	388	439	389-1	392	389-2
12	24	14	10	13	14	12	12	13	13	14	28

393 is the descriptive name of the first marker (or locus) normally examined by FTDNA, and it was found to be repeated 12 times in my DNA sample. The next marker was repeated 24 times! The curious names of the loci arise for reasons I do not understand, and are not even mentioned in a logical order! But disregard that. It is the string of numbers below the line which matter. They are called alleles.

The Cheshire Haplotype

So far 75 people have taken part in our Carden DNA project. Astonishingly, 31 of them exhibit a near-identical result. 16 are near-identical even when results for 25 markers are taken into account.

From this it is clear that nearly half of all participants, whether from USA, Australia or different parts of Britain, have a common ancestor! (Where results for only 12 or fewer markers are known the conclusion is more doubtful.)

Who was this common ancestor, this single individual? When and where did he live?

I think he lived in Cheshire in 1500 or before. This is because several of the 31 participants can trace their ancestry to Cheshire or just over its border in neighbouring counties of England, and there is evidence that there were Cardens in Cheshire from the earliest times. These participants have traced their descent back to 1700 or thereabouts without finding a common ancestor, so he must have lived a good while before 1700.

The table below lists the 31 participants with DNA results near-identical to the Cheshire haplotype. You will see the defined Cheshire haplotype at the foot of the table.

Matlock branch.	
Cecil Carding	13 24 14 10 12 12 13 13 29 (12)
Jim (James)	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18
John	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 17
Michael C'ng	14 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 17
Tom Carding	13 24 14 10 11 15 12 12 12 13 13 29 ( ) 17 9 9 11 11 25 14 19 29 15 15 17 18
Tipperary branches.	
Peter O'N (2009)	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18
Richard AP	13 24 14 11 12 12 13 13 30 (12)
Tonbridge branches..	
Mike	13 24 14 11 12 12 13 13 31 (12)
Terry L	13 24 14 11 11 14 12 12 12 13 13 31
Other Cheshire branches.	
Ernest	13 24 14 10 11 15 12 12 12 13 14 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18
Peter L	13 24 14 10 11 16 12 12 12 13 13 29
Tony (ABG)	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18
Virginia USA (origin).	
*Alton	13 24 14 10 11 15 12 12 12 13 13 29 ( ) 17 9 9 11 11 25 14 19 29 15 15 17 17
*Chris	13 24 14 10^ 12 12 13 13 29 (12)
*Chuck	13 24 14 10^ 12 12 13 13 29 (12)
*Eddie I	13 24 14 10 11 15 12 12 12 13 13 29 ( ) 17 9 9 11 11 25 14 19 29 14 15 17 18
*Greg	13 24 14 10 11 15 12 12 12 13 13 29 ( ) 17 9 9 11 11 25 14 19 29 15 15 17 18
*James E	13 24 14 10 11 15 12 12 12 13 13 29 ( ) 17 9 9 11 11 25 14 19 29 15 15 17 18
*Judson	13 24 14 10 11 15 12 12 12 13 13 29
*Raymond	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18
*Rob Glenn	13 24 14 10 11 15 12 12 12 13 13 29 ( ) 17 9 9 11 11 25 14 19 29 15 15 17 18
*John W'm	13 24 14 10 11 15 12 12 13 13 29
North Carolina USA (origin).	
*RichardJ	13 24 14 10 12 12 13 13 29 (12)
*Scott	13 24 14 10 11 16 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 17
*Thor	13 23 14 12 12 12 13 13 29 (12)
*Bill (TN)	13 24 14 10 11 15 12 12 12 13 13 29 ( ) 17 9 9 11 11 25 14 19 29 15 15 17 18
Alabama USA (origin)	
*Emmett	13 24 14 10 11 15 12 12 12 13 13 29 ( ) 17 9 9 11 11 25 14 19 29 15 15 18 18
*Gene/Timothy	13 24 14 10 11 15 12 12 12 13 13 29 ( ) 17 9 9 11 11 25 14 19 29 15 15 17 18
Other USA	
*Jerry A	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 16 16 18
*Leo	13 24 14 10 12 12 13 13 29 (12)
*Stephen	13 24 14 10 11 15 12 12 12 13 13 29

The Cheshire Haplotype is regarded as the following, exactly matched at 25 markers by 12 of the above 31 participants. It is the DNA result for of their common ancestor. Alleles which differ from the Cheshire haplotype are shown in red.

13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18

For explanations see the box which follows. * indicates participants from USA.

Explanatory notes

The portions of the Y-chromosome which are tested called markers. Each marker contains many identical repeats of the same information. The numbers in the table (referred to as alleles) show how many repeats have been found at a particular location or marker.

Thus the first number in the table, 13, shows that the late Cecil Carding's DNA contained 13 repeats of the first marker.

His DNA was analysed in 2002 when we were still using Oxford Ancestors to carry out the analyses. They only studied 10 markers. The DNA of the next individual, Jim, has been analysed by both Oxford Ancestors and by FTDNA. The latter firm analyses a much larger number of markers, but not the one shown in brackets as (12) for Cecil, so information about this marker is not available for any individual whose DNA has only been tested by FTDNA. The three gaps in Cecil's result refer to three markers which are analysed by FTDNA but not by Oxford Ancestors. The numbers (alleles) are shown in the order used by FTDNA.

I call the 17 identical results "the Cheshire Haplotype" for reasons explained earlier, and all the individuals undoubtedly have a common ancestor. Numbers shown in red differ from the Cheshire Haplotype. Those with up to two differences from the Cheshire Haplotype have been included in the table as one or two mutations can be expected to occur over the twenty or more generations back to the common ancestor. Those with more differences have been excluded, as there is a smaller probability that they are descended from the same common ancestor.

When studying the above table it must be borne in mind that there is some doubt as to whether those for whom less than 25 markers have been analysed belong in the table at all. The values for the first 10 markers of the 'Cheshire haplotype' are shared by about 3% of all Europeans, but of course very few of them have the Carden surname.

USA Participants

The USA participants included in the above table undoubtedly share a common ancestor in Cheshire with those in Britain, but though many have traced their ancestry in USA back to 1750 or before, only one has yet identified the actual immigrant from whom he is descended.

Some are having analyses of more than 25 markers made, up to over 60 in some cases, and if UK participants do the same, it may be found that the same mutations appear in the results for particular USA and UK participants, which would then identify to which UK branch their particular immigrant belonged. This would be fascinating information. It would be tremendously helpful if as many participants as possible, whether in USA or elsewhere, upgraded their results to 37 or 67 markers.

Some USA participants, whose ancestors came from the west coast of Ireland rather than from Cheshire, are not included in the table, but are discussed later on.

Brighton and Tonbridge Cardens

The Cardens of Sussex (see the "Carden of Brighton" book) and of the western part of Kent (see the "Carden of Tonbridge" book) are all thought to be descended from the

same Cheshire origins, and the "paper" evidence is quite good.

If the DNA result for one of them matched the Cheshire Haplotype that would add almost certain proof.

Here are the relevant results:

Tonbridge	
Roger (2001)	13 24 14 11 12 12 13 13 29 (12)
Roger (2008)	13 24 14 11 11 15 12 12 12 13 13 29 (12) 17 9 10 12 11 25 15 19 30 15 15 17 17
Terry L	13 24 14 11 11 14 12 12 12 13 13 31
Mike	13 24 14 11 12 12 13 13 31 (12)
Colin	13 23 14 10 13 14 11 14 12 12 12 28
Richard Llewellyn	13 23 14 10 13 14 11 14 12 12 12 28
David C	14 23 14 10 14 14 11 14 11 12 11 28
Brighton	
David (2008)	15 22 14 10 12 13 11 13 11 12 11 28 (12) 17 8 9 10 11 23 15 19 30 11 12 15 15
Donald (2008)	15 22 14 10 12 13 11 13 11 12 11 28 ( ) 17 8 9 10 11 23 15 18 30 11 12 15 15
Francis	13 22 14 10 13 14 11 14 11 12 11 28 ( ) 13 8 9 8 11 24 16 19 32 12 15 16 16
Cheshire	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18

Where alleles are missing this is because the analysis for the individual concerned was carried out by Oxford Ancestors who do not study the markers concerned.

Roger's 2001 result looked as if it was pretty good proof of the Cheshire connection as it only differed from the Cheshire haplotype at one marker. Just to make sure I persuaded Roger in 2008 to have his analysis extended to 25 markers. This was a disaster! He only matched at 8 out of the 13 extra markers, as will be seen from the extra line inserted above. At least he showed convincingly the dangers of relying on just a few markers.

Fortunately Richard Llewellyn Carden of Brisbane, who attended the Gathering with his wife Jill, immediately on his return to Australia submitted a sample for analysis. He belongs to one of the Tonbridge branches. His result has now been inserted above, and it will be seen that it matches Colin exactly and does nothing to support the Cheshire hypothesis.

As regards the Brighton Cardens it is interesting that the results for David of the Virgo sub-branch and Donald of the Hatter sub-branch match almost exactly and prove they have a common ancestor whom we know from 'paper' evidence to be Robert born 1787 seven generations previously.

The failure of DNA results obtained so far to link these Cardens to Cheshire despite the 'paper' evidence of a link suggests that there might have been a second Cheshire haplotype, exemplified by the closely similar results for David and Donald above. One or other of the two might have arisen from an adoption or other non-paternal event.

The Tipperary Cardens

At the time when this talk was given, it was believed that the Tipperary Cardens, who arrived in Ireland in about 1650, came from Cheshire and that this was to some extent supported

by the results below for Peter O'Neil Carden and Richard A P Carden.

Unfortunately none of the participants' DNA had at that time been analysed for more than 13 markers, too few to prove the theory with any real conviction.

Killard branch	
Peter O'N (2002)	13 24 14 10 12 12 13 13 29 (12)
Peter O'N (2009)	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18
Fishmoyne (Templemore) branch	
Richard AP	13 24 14 11 12 12 13 13 30 (12)
Barnane branch	
Arnold	12 24 14 10 13 14 12 12 13 13 14 28
Arthur	12 24 14 10 13 14 12 12 13 13 14 28 (12)
Michael J	12 24 14 10 13 14 12 12 13 13 14 28
Bob	13 23 13 10 13 14 11 15 11 13 11 29
Cheshire haplotype	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18

Dr. Peter O'Neil Carden is a member of the Killard branch of the family. The Killard and Templemore branches were founded by two brothers who, we believe, came from Cheshire to Tipperary in about 1650. Peter lives in Australia (we visited him for a few days in 1990). His 2002 result above was analysed by Oxford Ancestors. After this talk had been given he agreed to submit a sample for analysis by FTDNA, The result exactly matched the Cheshire haplotype and thus supported the theory of the Cheshire origin of the Tipperary family.

Recently the new Sir John Carden of Templemore has agreed to give a sample for a 25-marker analysis and hopefully this will prove the point properly.

But the results for the other Tipperary participants are extraordinary! They are discussed in the next paragraphs.

It is fascinating that Arnold (who lived in Argentina) Arthur (myself) and Michael J (who lives in Australia) have identical results with each other. There was some uncertainty as to whether Michael J Carden's branch (called "Barnane-in-Australia") was actually descended from the Barnane Cardens. His DNA result proves that fairly convincingly because of the match with Arnold and Arthur. All three have a known common ancestor in John Carden of Barnane born in 1699 who must have passed this particular DNA result down to all three.

Why did John (1699) not have a result matching the Cheshire haplotype? Somewhere in his ancestry there must have been a 'non-paternal event' (such as adoption or infidelity) to break the chain whereby the Y-chromosome is passed unchanged from father to son. His uncle was the ancestor of Peter O'Neill Carden so the break must have been at his conception or possibly in the previous generation. It is fairly well documented that (a) his father was disinherited for marrying without parental consent and (b) when his father died shortly after his birth his mother immediately married a John Barry. Is it possible that John (1699) was actually John Barry's son and that the disinheritance was for marrying someone

already pregnant? His father's will left everything to John (1699) and he was treated as a legitimate son, but might he have been quietly adopted?

If this is what happened, do all the offspring of John (1699) carry the *Barry* Y-Chromosome? Several people called Barry have given samples for DNA analysis but they do not match mine. Perhaps one day I will find one that does, and thus prove that all the Barnane Cardens should in a sense actually be called Barry!

[As for Bob, another Barnane-in-Australia member, his DNA result is utterly different. He was actually rather reluctant to give a sample and told his daughter he took the sample from his prize steer!]

Other Cheshire Cardens

It was mentioned above that the Cheshire haplotype is so named partly because several participants trace their ancestry to Cheshire or neighbouring counties including Derbyshire.

Here they are -

Winsford	
Ernest	13 24 14 10 11 15 12 12 12 13 14 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18
Randle	
Peter L	13 24 14 10 11 16 12 12 12 13 13 29
Bendigo	
Tony (ABG)	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18
Matlock	
Jim (James)	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18
John	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 17
Michael Carding	14 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 17
Tom Carding	13 24 14 10 11 15 12 12 12 13 13 29 ( ) 17 9 9 11 11 25 14 19 29 15 15 17 18
Cecil Carding	13 24 14 10 12 12 13 13 29 (12)

Cardens from Mayo and Sligo

Many Cardens trace their ancestors to these counties on the west coast of Ireland, and it has been discovered that there were Cardens in Co. Sligo before any arrived in Co. Tipperary. They are all Catholics, unlike the Protestants in Tipperary.

*Fred	13 21 14 11 11 14 12 12 13 13 13 29 ( ) 18 9 10 11 11 25 14 17 29 15 15 15 16
Gerard/Owen	13 21 14 10 12 12 13 13 29 (12)
Peter (IRE)	13 21 14 11 11 14 12 12 13 13 13 29
*Terry (AZ)	13 21 14 11 11 14 12 12 12 13 13 29 ( ) 18 9 10 11 11 25 14 17 29 15 15 15 16
*Gerald O'Brien	13 21 14 11 11 14 12 12 12 13 13 29 ( ) 18 9 10 11 11 25 14 17 29 15 15 16 18
Malcolm R / Jim	13 24 14 11 11 14 12 12 13 13 13 29
*John David	13 21 14 11 11 14 12 12 13 13 13 29 ( ) 18 9 10 11 11 25 14 17 29 15 15 16 18
Sligo haplotype	13 21 14 11 11 14 12 12 13 13 13 29 ( ) 18 9 10 11 11 25 14 17 29 15 15 15 16
Cheshire haplotype	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18

Alleles in red note mutations from the Sligo haplotype.

It will be seen that the results are mostly very different from the Cheshire haplotype, and a Sligo haplotype is treated as

having been established by the results for Fred, Peter (IRE), and with one mutation John David and Terry (AZ).

Gerald and Owen are close cousins with identical results, so they are amalgamated above. Malcolm R and Jim (Nick) are also cousins[1] – but with results for only 12 markers it is not certain which haplotype they match more closely, so they may be English rather than Irish.

There are eight differences (over 25 markers) between the Sligo and Cheshire haplotypes, far too many for there to be any possibility of a common ancestor, even going back to the days of the Norman invasion of Ireland.

East Kent Cardens

The east Kent participants appear not to share a common ancestor with any of the above.

East Kent.	
Bill	13 23 15 11 12 9 12 13 28 (M) [2]
Ron	13 23 15 11 12 9 12 13 28 (12)
Ian	13 23 15 10 11 14 12 9 11 12 13 28
Cheshire haplotype	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18

An "East Kent" haplotype is to some degree defined by the eight alleles common to the above three participants. Results for more markers and for more people would help.

But it seems clear that there are Cardens in east Kent with an utterly different origin from those found elsewhere. Joan Carden has suggested that they are descended from a John Cardon who appears in the Domesday Book.

Variant surnames[3]

It is interesting to try to use DNA to discover whether men bearing variants of the Carden surname share a common ancestor with each other. This has already successfully been shown for Carding. But many more results are needed before any conclusions about other variants can be drawn.

Fred Calladine	13 23 14 11 11 14 12 12 12 13 13 29
*Taylor Cowardin	13 23 16 10 11 17 13 11 29 (12)
*W R Calladine	13 23 16 10 12 15 11 17 12 13 11 29 ( ) 19 8 9 10 11 25 24 18 28 11 14 14 15
Chris Calladine	13 23 13 11 11 15 12 12 12 13 14 29
Christian Cardin	14 22 14 10 13 13 11 17 11 12 11 28
Cheshire haplotype	13 24 14 10 11 15 12 12 12 13 13 29 (12) 17 9 9 11 11 25 14 19 29 15 15 17 18
Sligo haplotype	13 21 14 11 11 14 12 12 13 13 13 29 ( ) 18 9 10 11 11 25 14 17 29 15 15 15 16

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[1] Jim is called Nick by FTDNA for a strange reason explained in the Mile End document.

[2] 'M' is a 'multiple' allele according to Oxford Ancestors

[3] A man in USA called Philip Gibson Swan matches the Cheshire haplotype exactly (over a good many more than 25 markers). An ancestor may have changed his name from a Carden variant to Swan, or perhaps he shares a common ancestor who lived before surnames came into common use.

Fred Calladine's result matches the Sligo haplotype with only one mutation. This is a very curious result, and must surely be a coincidence.

Taylor Cowardin matches his fellow American W R Calladine exactly and it seems likely that he had a Calladine ancestor. But they do not share any of the English haplotypes. WRC runs a Calladine DNA surname project, but none of his participants shares any of the English haplotypes either.

Chris Calladine (a Cambridge professor) differs from the Cheshire haplotype at three markers, but with only 12 markers analysed, no conclusion can be drawn. Christian Cardin (the latter from Brittany in France) matches no one else.

Summary of participants

As mentioned at the start, 75 men have participated so far in the Carden DNA project. The following appears to be the overall result.

Close to the Cheshire haplotype[4]	31	41%
Tipperary variants	3	
Brighton variants	2	
Close to the Sligo haplotype	8	11%
Close to the East Kent haplotype	3	4%
Others	28	37%

The "others" category mostly consists of those for whom no conclusions can be drawn. In some cases they may represent another genetic group not yet recognized, in other cases it is clear that a 'non-paternal event' has occurred in their ancestry. It also includes the five with variant surnames mentioned above.

[4] Including some differing at three markers.