

## How DNA Analysis Has Transformed the Knowledge of a Manx Family's History

### Background

The author has been researching the history of the Creer family from the Isle of Man for a number of years. Worldwide, there are probably no more than 1000 people living today who bear the name Creer, and who can trace their ancestral origins to the Isle of Man. By genealogy standards this makes Creer a rare or low-frequency family name. This fact, coupled with the ability to identify a precise geographical origin (within a radius of 10 miles) for the first recorded family members, has made the task of undertaking a comprehensive genealogy study (One-name study) of all Creer family groups comparatively easy.

An extensive database of information (20,000+ records) has been developed and numbers of Creer family trees collected and assembled from the full range of conventional genealogy research sources, parish registers, birth marriage and death indices, wills, censuses, land records etc as well as from other Creer family members.

This database is sufficiently comprehensive that all Creer family groups are included, at least in part. Contact has also been established with Creer family members around the world through the medium of the Creer family history website [www.ballacreer.com](http://www.ballacreer.com).

This conventional genealogy research has identified and developed a significant number of Creer family trees, the earliest of them being documented from the 17<sup>th</sup> century until the present day. The earliest evidence shows that the early families lived and farmed in the Baldwin valley in the parish of Braddan in the Isle of Man,

It has also been observed that in the 16<sup>th</sup> century the family name was McCreer, typical of most of the Manx Gaelic family names of the time in its use of the prefix "Mac" (Gaelic: son of). By the end of the 17<sup>th</sup> century, again in common with most other Manx names, the prefix "Mac" fell out of use and the name became known as Creer.

The earliest surviving written records from the Isle of Man (Manorial Rolls 1511-15) show that all the six Creer (then McCreer) families on the island at that time lived and farmed in several parishes around the centre of the island. Subsequent records show that various Creer families continued to occupy a number of the major farms in Baldwin for several centuries after then, whilst at the same time multiplying elsewhere on the Isle of Man, spreading to other parishes and then later on to England and ultimately the rest of the world.

Because the records show that over a number of centuries certain, still identifiable, farms were continuously occupied and farmed by the McCreers/Creers, it is reasonable to postulate that all present day Creer families may be descended from this small number recorded in 1511. However, the conventional genealogy sources do not provide sufficient evidence to connect the known Creer family tree groupings with these earlier families.

Also, if that proposition is true, then because there were such a small number of families in 1511, it is reasonable to suggest that they themselves could be the descendants of just one man who might have existed perhaps several hundred years before.

Analysis of the Manx parish registers (earliest record 1627) shows a steady growth in the population of Creers on the Island from a low level in the 1630s until the second half of the 19<sup>th</sup> century (when poor economic conditions stimulated migration overseas). See figure 1.

Extrapolating this Creer population growth data backwards would also lead to the conclusion that

there were only a small number (<10 families) of Creers on the Isle of Man during the period 1500-1600.

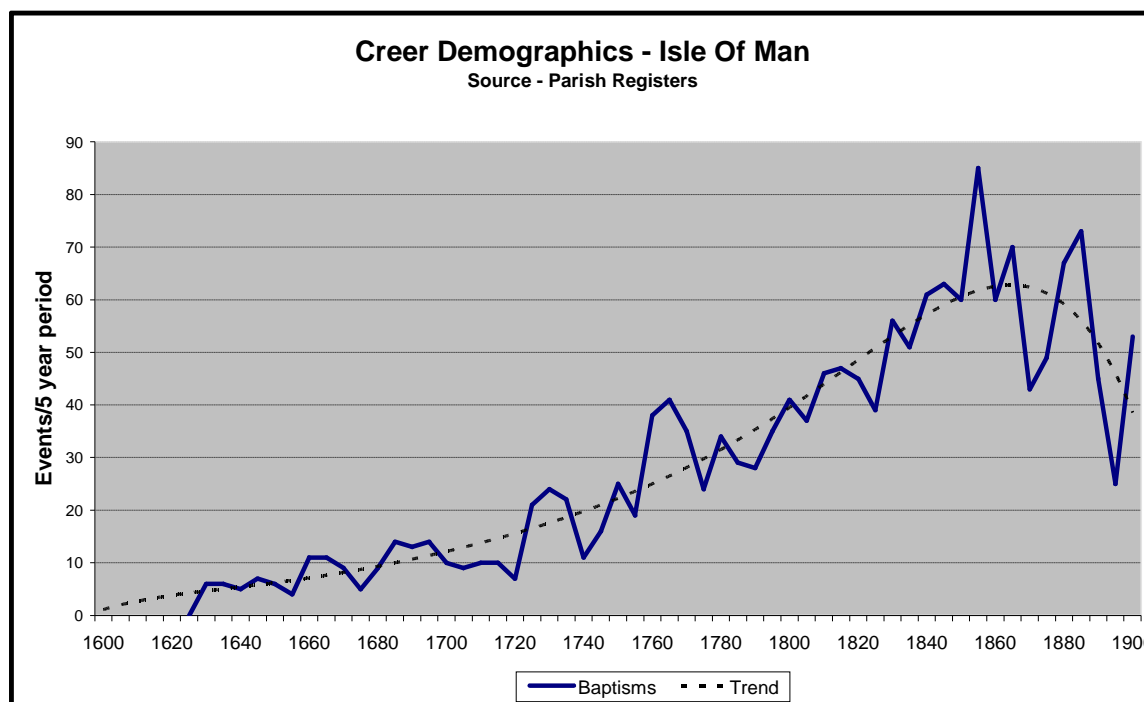


Figure 1

However, research into this early Creer family history is now proving increasingly slow and difficult owing to the scarcity of any surviving records from this time, their inaccessibility, incompleteness and lack of detail.

#### The Use of Y-DNA Analysis

The developing technology of Y Chromosome DNA (Y-DNA) analysis and the accelerating understanding of its use and application in genealogy now represent a new tool to provide additional information and clues about the relationships and connections between our ancestors that conventional genealogy is unable to do.

In considering the use of this new technology and techniques, it became clear that any attempt to use Y-DNA analysis to answer genealogical questions problems of the Creer family from the Isle of Man should be carefully designed and directed, with clearly focussed objectives.

#### Creer Y-DNA Surname Study

The Creer Y-DNA study was initiated in June 2005 by the author to try and identify the extent and nature of the genetic connections between a group of men bearing the Creer surname and specifically to answer questions that existing genealogical research was unable to resolve, namely:-

1. Are the male Creers genetically connected to each other in any way – and if so:-
2. Is it possible to assess whether the McCreres known to live on certain farms in 1511 were the ancestors of the Creers living on the same farms 100-150 years later?
3. Then if the answers to 1 and 2 are yes – then it means that all Creers are most probably descended from one single male ancestor and then the question becomes “is it possible to try and assess an approximate timescale during which that first Creer might have lived? “

The Creer men invited to take part in this study were chosen on the basis of their membership of specific Creer family groupings. These were groupings where family trees had been documented

covering a number of generations but where there was no proven connection with any other, ostensibly separate, Creer family tree.

Wherever possible, at least two members were selected from each distinct family tree in order to establish and confirm the individual DNA profile for that individual family group. There was a minimum of 8 generations history documented for each of the Creer family trees included in the study, so there would be sound genealogy evidence against which to match and validate the DNA results.

Invitations to join the study were sent to candidates in the Isle of Man, England, Australia, USA and Canada together with additional material describing in full all aspects of what was involved. A specific website was also established ([www.creer.co.uk](http://www.creer.co.uk)) to inform and support participants.

In the main phase of this project (now completed) 25 candidates were tested, belonging to 13 distinct Creer family groups. 25 marker resolution tests supplied by Family Tree DNA were used.

#### Interpretation of Results

The result of an individual's Y-DNA test is a series of 25 numbers, showing the particular value at each of 25 specific positions or markers on the Y chromosome. This collection of numbers is effectively the Y-DNA signature for that person and is known as a "haplotype".

When an individual's haplotype is compared with the haplotypes of other men who share the same family name or a derivative of that name, it can become possible to start to make inferences about how closely they are connected genetically. It is important to stress however, that, at the current level of knowledge of these techniques, it is only worthwhile to make such comparisons at all when the family name is the same or similar.

Analysis of a cluster of closely connected haplotype values from men within a family group can indicate the order in which mutations occurred and enable a form of evolutionary genetic family tree to be created. This is called a phylogenetic tree.

Also the statistical probability of when such mutations most likely occurred can be calculated. This information, when combined with the knowledge already derived from conventional genealogical research can answer previously unresolved questions.

#### Results of the Creer Y-DNA Study

"Genetic Creers"

18 out of 25 haplotype results were very closely grouped with each other and this group were described as "genetic Creers".

The range of variation in haplotype values was very narrow and analysis showed that:-

1. In the majority of cases, men in the same Creer family tree grouping, (i.e. those who were shown by genealogy research to be closely related), showed identical or very close DNA values to each other. This provided an immediate validation of the proposition that Y-DNA analysis can corroborate or add to the knowledge gained from genealogy research.
2. Some men in separate Creer family groupings also possessed identical DNA values to men in other Creer family groups, demonstrating relationships that were not hitherto revealed by genealogy research. In 9 such cases their DNA tests were later upgraded from 25 to 37 markers to try and gain a more precise understanding of if and when any more recent genetic differences may have occurred, and what possible genealogical inferences could be drawn. This did prove helpful.

3. Sorting and analysis of the genetic Creer DNA values indicated that a chronological order of dependence between different family groups could be derived.
4. The DNA values for the single common ancestor could be clearly identified. The obvious conclusion was that all family groups had evolved/descended from one single central set of DNA values which must represent that of the “ancestral Creer”, i.e. the single common ancestor from which all current genetic Creers are descended.
5. No one member of the genetic Creer group showed a genetic distance greater than a value of 2 mutations from the central value, at a test resolution of 25 markers. This suggests that such branches in the family tree could have occurred any time during the last 6-700 years. This fits well with what could be surmised from the conventional genealogy research.

It was possible to display these relationships in a phylogenetic tree. See Figure 2

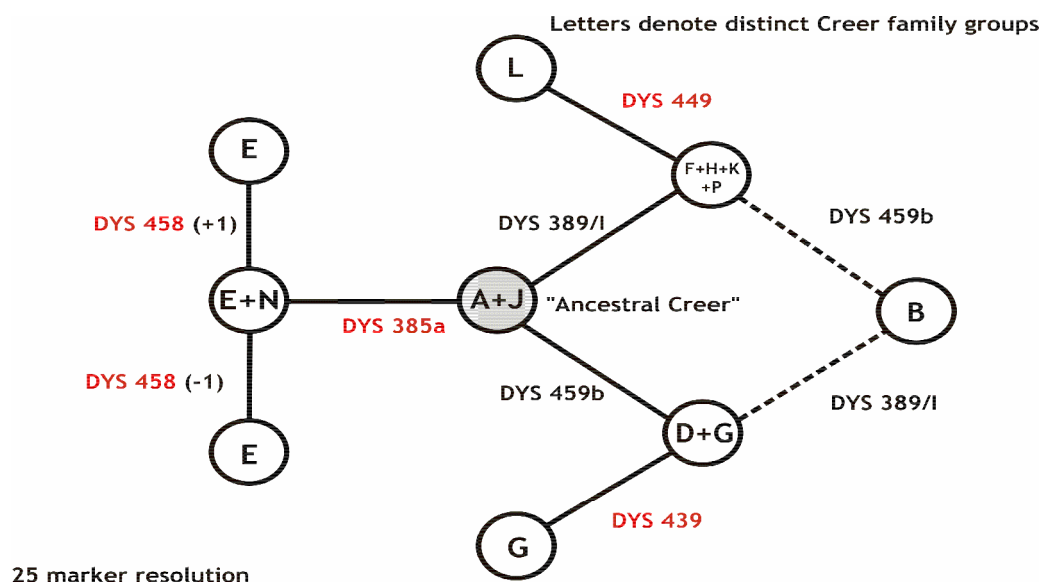


Figure 2 – Creer Phylogenetic Tree connecting Family Groups

Each of the circles denotes one or more men with identical haplotype values; the letters identify which Creer family group they belong to, and the line between the circle indicates where a single step mutation has taken place and records the identity of the marker involved, i.e. they are each a genetic distance of one mutation apart from each other. From this analysis some chronological order of dependence between different family groups can be derived.

It was interesting to see that examples of the ancestral Creer haplotype were still shown unchanged by some Creer descendants today. (Satisfyingly the author is one of them).

#### Non-Genetic Creers

The 7 haplotype results that were significantly different from the genetic Creers were all very different and were at least a genetic distance of 9 from the Creer ancestral haplotype. This indicated no genetic connection to the genetic Creers within at least the last 3,000 years. In such cases then other interpretations can be drawn. If there are two men with the same surname who are found not to be genetically connected in this way then there are several possible reasons:-

- The two families originated from two different genetic sources and have acquired their surnames in different ways

- A male ancestor in one of the lines was either adopted or was fathered out of wedlock or fathered by a man who was not married to his mother. These situations are described as “non-paternity” events and lead to a break in the male genetic line.

In this study the first reason can be ruled out in the light of the existing genealogy knowledge and selection of candidates. Thus this evidence of a comparatively high level of non-paternity events (adoption, illegitimacy or adultery) within a relatively small sample population was surprising.

It does seem likely that these non-paternity events (NPE) occurred after 1800. Before this time Manx society was more closely knit and strongly puritan as it was dominated by the church and there was little geographical mobility. In this climate, despite the greater opprobrium associated with births out of wedlock, few illegitimate births escaped unnoticed.

The analysis of these results revealed new information nevertheless:-

1. Three members of the same Creer family group were tested and two of them showed similar non-Creer haplotype values, whilst the third possessed a typical Creer haplotype. With this information, it became possible to triangulate where and when the non-paternity event probably took place in their family tree. (ca 1820)
2. Another member of this group was known to have an illegitimate Creer ancestor. A Creer male having been cited as the father of the illegitimate son in 1870 and the son's name changed to Creer after first being christened with his mother's name. The Y-DNA analysis however indicated that this parentage was impossible, as the Creer descendant tested did not show the Creer haplotype, whilst another descendant of the putative father did. This was perhaps an example of a mother naming her illegitimate child after a wealthy suitor, but where he was not in fact the biological father of her child.

No close haplotype matches between this group of non-genetic Creers and others within the growing public databases of Y-DNA results have been found so far. However it is quite possible that within the next few years this database will have expanded to an extent that matches will be found – and thus help solve the mysteries of these particular non-paternity events.

### Summary and Conclusions

Although this was a relatively small sample of respondents in comparison with some other studies, the closely-fitting set of DNA results observed, set alongside a very comprehensive database of matching family history records indicate that this tightly-focussed research has indeed produced valid results. Whilst, the sample tested represented only about 5% of all Creer males living today, the Creer family groups included in the testing cover more than 50% of all Creer males living today.

The way in which the Y-DNA analysis has corroborated and supported the genealogy evidence has been impressive and reassuring. This study clearly demonstrates how these new techniques do really work in conjunction with existing genealogy research and can bring new and powerful insights – and has also unblocked a major barrier in understanding the Creer family history. The questions that were posed at the beginning of the study and that now have been answered are:-

1. All Creers from the Isle of Man are genetically related to each other.
2. Because the Creer haplotype values were so closely-grouped, the McCreres recorded in 1511 must have been the direct ancestors of the Creers living on the same farms 100-150 years later<sup>a</sup>.
3. This means that all Creers from the Isle of Man are descended from one single male ancestor.
4. Statistical modelling of the Creer phylogenetic tree was carried out and this indicates that there is a 95% probability that this Creer common male ancestor lived between 1260 and 1409<sup>b</sup>.

In addition, other new knowledge about the history of the Creer family has been gained:-

- Previously unsuspected connections between existing Creer family tree groups have been identified and new insights into relationships have been gained
- Recent deep ancestry DNA tests show that the Creer family can be classified as belonging to the larger R1b1b2a1b5\* Haplogroup (or R1b-L21). This is a quite a specific and recent Y-DNA identification and is relatively common in Europe. It is taken to indicate a Celtic (Irish or Scottish) origin. This DNA profile might be expected in view of the proximity of the Isle of Man to its two Celtic neighbours, but at the current level of knowledge no further clues which might tell us more as to whether the earlier origins of the Creer line might be found in Ireland or Scotland, are apparent. Work to try and find out more on this aspect is ongoing.

So the DNA analysis has answered, very persuasively, a question that it has not been possible to solve hitherto by using conventional genealogical research. This work has showed how Y-DNA analysis has the real capability to transform our genealogy studies in future. This is particularly true for a one-name study where there is already a large body of supporting genealogy evidence against which to validate the DNA evidence.

In addition – all Creers are now provided with a new sense of a common identity and family – and genetic clues are available to help track the history of the family even further back than the 14<sup>th</sup> century. More work to do!

#### Next Steps

Several more actions are planned to build on what has already been learned:-

- More candidates will be sought for testing from Creer family groups not yet included, to fill in more gaps.
- Further refinement of the Creer haplogroup will be carried out as new tests become available, in order to identify possible earlier genetic connections outside the Isle of Man.

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#### Footnotes

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<sup>a</sup> If these had been two separate families, albeit with the same name, the DNA values recorded from the participants would have showed a much wider spread and diversity. This was not the case.

<sup>b</sup> Statistical modelling was performed on both the full 25 marker data and a subset of 37 marker results to try and identify the most probable timescales for these genetic relationships to have occurred and identify when most likely the common ancestor for all these genetic Creers might have existed. It was possible to model this statistically using varying assumptions for certain parameters involved. There are published ranges of rates of mutation for each of the usually tested Y-DNA markers and these could be used to refine the calculation. Accordingly three scenarios were calculated: “Optimistic”, “Realistic” and “Pessimistic” using different sets of the published mutation rates, in order to try and assess the possible spread of results. Only the most conservative conclusions were drawn. Specialist computer software was used to perform this analysis namely Dean McGee’s Y-DNA Comparison Utility, Phylip v.3.66 using Fitch-Margoliash method and MEGA v.3.1 Tree Drawing