

# Case Study

## Pinpointing the BELL Genetic Homeland

---

[www.scottishorigenes.com](http://www.scottishorigenes.com)



**Dr Tyrone Bowes**  
**Updated 4<sup>th</sup> August 2012**

### Introduction

A commercial 37 marker Y chromosome DNA test will potentially provide one with the names of many hundreds of individuals with whom one shares a common male ancestor. What often perplexes people is how one can match many individuals with different surnames? The answer is quite simple. Roughly 1,000 years ago one's direct medieval male ancestor, the first for example to call himself 'Bell' was living in close proximity to others with whom he was related, but who assumed other surnames like Armstrong, MacCormick and Graham. In the 1,000 years since surnames were adopted, there will be many descendants of these individuals some of whom will today undergo DNA testing. Hence the surnames of one's medieval ancestor's neighbours will be reflected in today's DNA test results.

In Ireland and Scotland surnames can still be found concentrated in the County from which they originate. In this manner one can examine surname distribution maps and pinpoint a '**Genetic Homeland.**' The Genetic Homeland is the very small area, usually within a 5km (or 3 mile radius) where one's ancestors lived for hundreds if not thousands of years. It is the area where one's ancestors left their mark in the placenames of that area and in the DNA of its current inhabitants. Since modern science can pinpoint a Genetic Homeland it can also be used to confirm it by DNA testing individuals from the pinpointed area. The Case Study below will detail how I made sense of the test subject 'Bell's' Y-DNA results and will provide a checklist on how to proceed in identifying your own Genetic Homeland.

#### **Notes of caution!**

1. Science has demonstrated that each Irish Clan had potentially a single founding ancestor. Since much of Scotland adopted a similar Clan system in it is logical to assume that the same is indeed true for Scotland and Scottish Clans. Similarly science has also demonstrated that only 50% of individuals with a particular Irish surname will be related to the surnames founding ancestor (the surname 'Adam'), the other 50% of people will have an association that has arisen as a result of what are called 'non-paternal events,' usually a result of adoptions or infidelity.
2. Often people are looking for their DNA results to trace back to a specific area. One must remember that the results reflect one's ancestor's neighbours from around 1000 years ago. As a result if your Irish or Scottish ancestor was originally a Viking raider or a conquering Norman your DNA results will reflect earlier continental or Scandinavian origin. In Ireland for example, only 60% of those with Irish ancestry are related to the pre-Christian Celtic tribes of Ireland. One must approach this process with an open mind!

## Bell: A brief family history

The test subject Mr Bell is a good friend of mine and was a willing participant in a study which set out to demonstrate the reproducibility of an analytical research method that uses the surnames of an individual's 'genetic matches' to pinpoint a time and place where a founding ancestor (e.g. the first Bell) lived. Like the vast majority of people today the test subject had no idea about his distant ancestors. His most recent ancestors were Irish Catholics living in Dublin City, Ireland.

### Pinpointing test subject Bell's Genetic Homeland

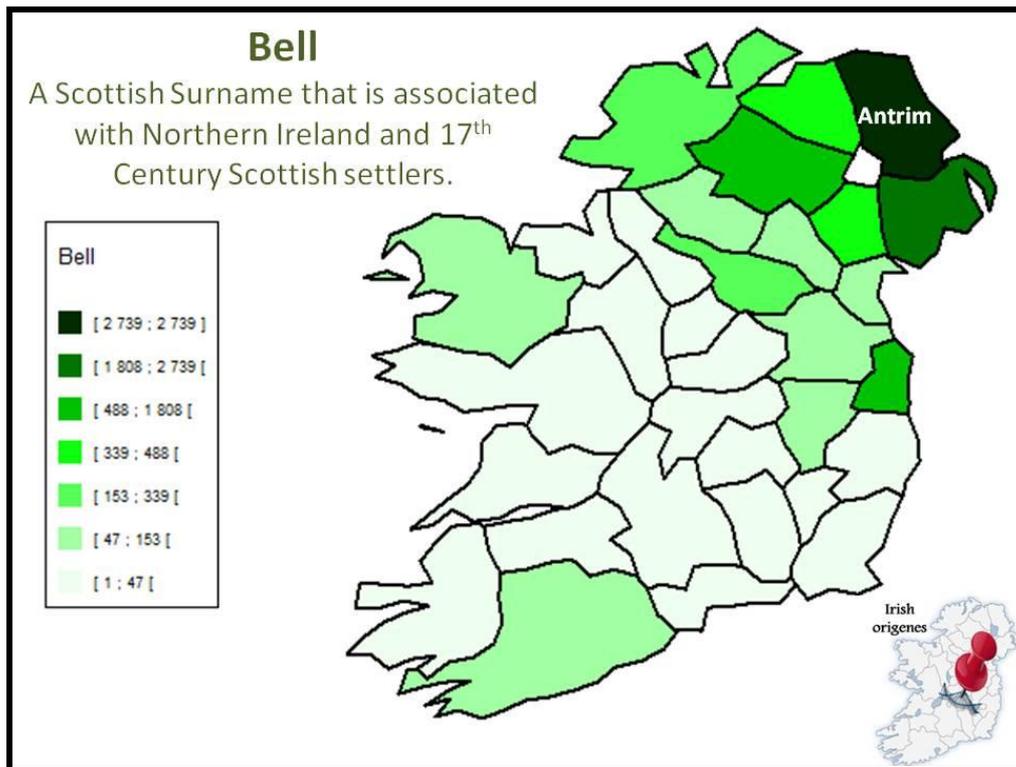
To identify a Genetic Homeland one must first find the surnames that continually appear as genetic matches. These reoccurring surnames are less likely to be a result of non-paternal events (adoptions/infidelity) and reflect the surname of a medieval ancestors neighbour. Surnames that continually reoccur as genetic matches for test subject Bell are listed in **Table 1**.

#### **SURNAMES THAT REOCCUR AS A GENETIC MATCH FOR TEST SUBJECT BELL FROM 37 MARKER Y-CHROMOSOME DNA TESTING**

37 Marker DNA test			
Test subject	Exact (37/37)	36/37	35/37
Bell	No match	Bell McCormick Irving Moffatt Brown	Armstrong Graham Nelson

**Table 1:** Genetic Matches of test subject Bell. Only surnames that reoccur as genetic matches are shown. Surnames are shown at the point at which they first occur as a genetic match, for example the first match occurs with another 'Bell' in 36 of 37 markers, but not all of the other individuals with the Surname 'Bell' will match at this level.

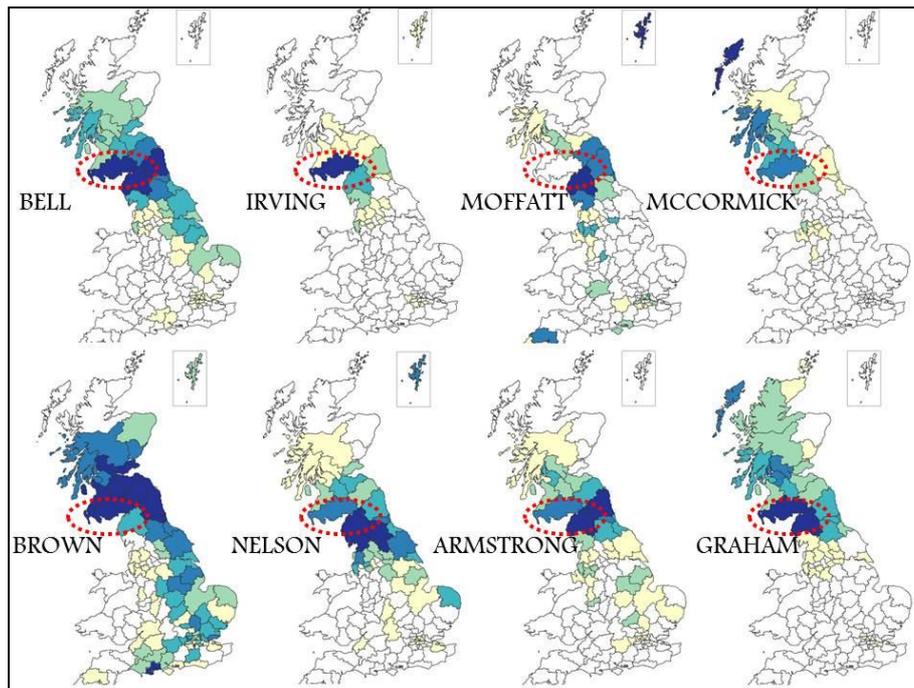
The closest and most frequent genetic matches in the Family Tree DNA database are to other individuals called Bell. Mr Bell is part of the 50% of individuals who after 1,000 years have retained their founding ancestors Surname. Surname distribution mapping from the [Irish Origenes](http://www.irishorigenes.com) website shows that the Surname Bell when found in Ireland is associated with the 16<sup>th</sup> and 17<sup>th</sup> Century plantation of Ulster when the land was settled by large numbers of Scots and English, see **Figure 1**. In addition 87% of people with the Surname Bell in Ireland in 1911 are Protestant. Both the distribution and religious affiliation indicate that Mr Bell's medieval ancestry lies in the UK rather than in Ireland



**Figure 1:** Distribution of the Bell Surname throughout Ireland. The Surname Bell is concentrated in the Northeast in Counties associated with the Plantation of Ulster which began in 1610 AD. Image taken from the [Irish Origenes surnames database](#).

A Scottish medieval ancestry is reflected in the reoccurring Surnames of test subject Bell's genetic matches, which upon Surname distribution mapping demonstrate a clear association with the UK, see **Figure 2**. There are 2 distinct Clan Bell's associated with Scotland. The largest and best known Clan Bell is associated with Dumfriesshire near the English border, while the lesser known Clan Bell is traditionally associated with the MacMillan's in Argyle, in the Highlands and Islands of western Scotland. The Surname distribution pattern in the UK of Bell, MacCormick, Moffatt, Brown, Irving, Armstrong, Graham, and Nelson are clearly associated with the western edge of the Scottish and English border, where lowland Clan Bell's medieval territory was located, **Figure 2**.

## Bell - A Case Study



**Figure 2:** Surname distribution mapping for Mr Bell's genetic matches. Distribution mapping of the Surnames of test subject Bell's closest genetic matches reveal an association with the Scottish/English border and particularly with Dumfriesshire (**red broken circle**).

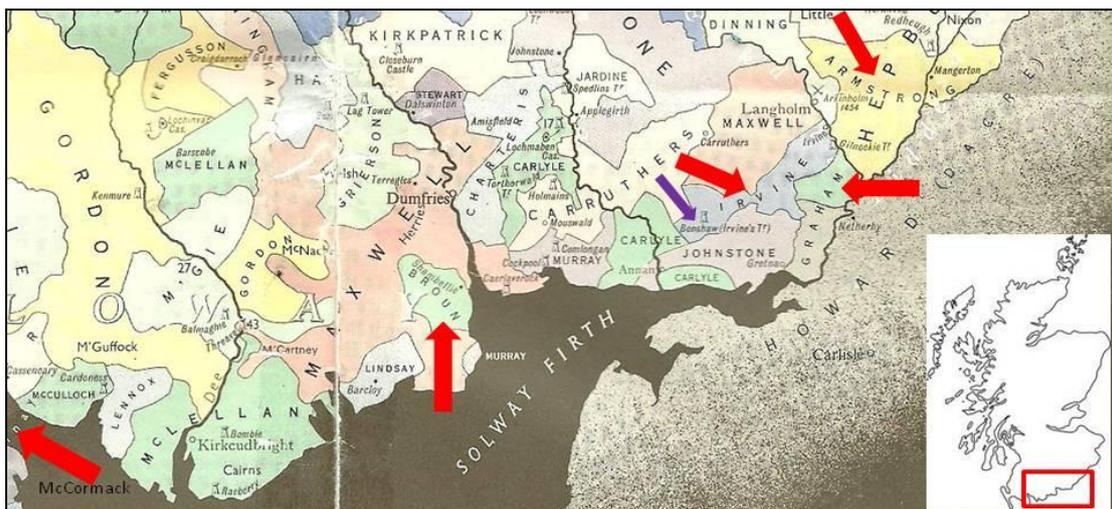
### Lowland Scots and Border Reivers

The Genetic Homeland of lowland Clan Bell can be determined by exploring where the Bell Farming community resided in Scotland. The earlier in time this can be examined the better, as over time more and more Bell's migrate and the association with the ancestral land is gradually lost. In the early 1800's, farmers with the Surname Bell were concentrated in a triangular area within Dumfriesshire between Middlebie, Kirkpatrick Fleming, and Annan, **Figure 3**. Within this area lies Clan Bell's ancient territory and hence Mr Bell's Genetic Homeland. A map of the 15<sup>th</sup> and 16<sup>th</sup> Century Clan territories of Scotland show the clustering of Surnames that continually reoccur as genetic matches within this pinpointed area, **Figure 4**.

## Bell - A Case Study



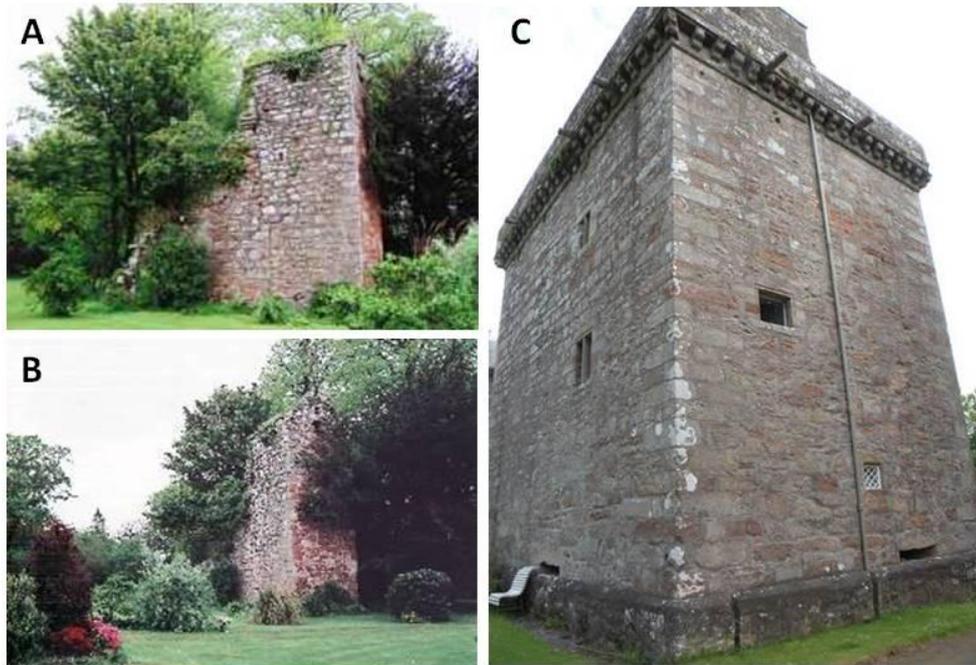
**Figure 3:** Mr Bell's Genetic Homeland on the Scots and English border. In the early 18<sup>th</sup> Century the Bell Farming community was found concentrated between Middlebie, Kirkpatrick Fleming, and Annan in Dumfriesshire. This area (orange broken circle) is Mr Bell's Genetic Homeland. Just south of Middlebie is the remains of Blackethouse Tower the seat of the last Chief of Clan Bell which was destroyed by the English in a raid in 1547.



**Figure 4:** 16<sup>th</sup> Century Clan map of Southwest Scotland. Clan Bell's territory was centred upon the fortified tower known as Blackethouse, situated close to Clan Irving's Bonshaw's Tower (purple arrow). This 16<sup>th</sup> Century Clan territory map shows the proximity of Clan Armstrong, Irving, Graham, MacCormick, and Broun which appear as Mr's genetic matches (red arrows) to both Clan Bell and the English border.

## Bell - A Case Study

The last Chief of the clan, William Bell, known as Redcloak, died in 1628. His home was originally Blackethouse (**Figures 3, 4 and 5**) which was destroyed in 1547 during a raid by the English. Blackethouse is near Bonshaw Tower, the seat of Clan Irving which is shown in the Clan map, **purple arrow Figure 4 and 5**. The medieval lowland Clan Bell engaged in "rieving" (raiding) and participated in many battles against the English. Clan Bell was declared 'unruly' by the Scottish Parliament, and without leadership (after the death of William) the Bells ceased to exist as a viable clan and many migrated to Ulster in Northern Ireland.



**Figure 5:** Blackethouse and Bonshaw tower. Blackethouse built in 1459 was the home of the last Chief of Clan Bell, its ruins can still be seen today, **panel A and B**. The intact Bonshaw's Tower (**panel C**) built by the neighbouring and the genetically related Clan Irving, situated close to Blackethouse is an example of what Blackethouse would have looked like. Such a strong solid defensive structure was a necessity for survival in such a volatile region.

### How to confirm a Genetic Homeland

Test subjects Bell's founding ancestor, the first to take the Surname 'Bell' was living in Dumfriesshire in Scotland. There is some suggestion that the Bell's were originally Normans, if this is so, then they eventually became indistinguishable from other Scottish Clans with a Clan Chief and a Clan territory, although as lowland Scots they probably never spoke Gaelic. How Mr Bell's ancestors ended up in Ireland can only at present be guessed at. It is unlikely that he arrived in Ireland in 1315 AD as part of Edward the Bruce's (brother of Robert) ill-fated invasion force. It is also unlikely that he was a mercenary Scottish warrior known as Gallowglass, traditionally associated with the Western Isles of Scotland. It is most likely that he arrived in 1610 as part of the plantation of Ulster. Unusually in the test subjects case, the probability is that his Scots-Irish ancestor married an Irish Catholic woman and over time any remaining trace of his Scottish roots were lost as his family assimilated into Southern Irish

## Bell - A Case Study

---

Catholic society. To prove that the area around Blacket house in Dumfriesshire as the Genetic Homeland of Mr Bell will require the DNA testing of farmers called Bell within this location!

Clan Bell Crest and Tartan



**HAVE YOU HAD A Y-DNA TEST? THEN ORDER YOUR OWN CASE STUDY  
BY CONTACTING ME DIRECTLY [tyronebowes@gmail.com](mailto:tyronebowes@gmail.com)**

**The consultation for your own Case Study is free. At present there is  
an 80% success rate. If in the unlikely event that I cannot pinpoint your  
Genetic Homeland I will explain why and I will not charge you.**

### **CHECK LIST FOR DISCOVERING YOUR OWN GENETIC HOMELAND**

1. First you must order a Y-DNA37 test from Family Tree DNA. To order follow the 'are you a warrior' link from the [Scottish Origenes homepage](#).
2. PublicProfiler World names database.
3. Census data (earlier the better).
4. Google Earth.
5. Scotland of Old, Clan Names Map.